United States Department of Education
Reading First Program

Title I, Part B, subpart 1
No Child Left Behind Act of 2001

State of New Hampshire Reading First Plan
May 2, 2003

Reading First Office
Bureau of Integrated Programs
New Hampshire Department of Education
101 Pleasant Street
Concord, New Hampshire 03301

NEW HAMPSHIRE READING FIRST PROGRAM

TABLE OF CONTENTS

"Learning to read and write is critical to a child's success in school and later in life. One of the best predictors of whether a child will function competently in school and go on to contribute actively in our increasingly literate society is the level to which the child progresses in reading and writing. Although reading and writing abilities continue to develop throughout the life span, the early childhood years—from birth through age eight—are the most important period for literacy development."
(Neuman, Copple, & Bredekamp, 2000, p. 3)

The New Hampshire Reading First Program has adopted the above statement as a core understanding that exemplifies our commitment to early literacy. The New Hampshire Reading First Program demonstrates the collaboration of literacy educators in the state of New Hampshire to provide all schools with scientifically based reading research and quality professional development that will improve, enhance, and enrich reading instruction across state and local agencies.

UNITED STATES
DEPARTMENT OF EDUCATION

READING FIRST PROGRAM

Number 84.357 in the Catalog of Federal Domestic Assistance

Date Funds Become Available: July 1, 2002

1. Legal Name of Applicant Agency (State Educational Agency): New Hampshire Department of Education	2. Employer Identification Number (EIN): 10-2600618-B2
3. Applicant Address (include zip): New Hampshire Department of Education State Office Park South 101 Pleasant Street Concord, NH 03301-3860	4. Contact Person Name: Ms. Janet Catalfano Position: Reading First Coordinator Telephone: 603-271-0055 Fax: 603-271-2760
5. To the best of my knowledge and belief, all data in this application are true and correct. The document has been duly authorized by the governing body of the applicant and the applicant will comply with the attached assurances if the assistance is awarded.	
a. Typed Name and Title of Authorized Representative: Nicholas C. Donohue Commissioner, New Hampshire Department of Education	b. Tel. No. (603) 271-3142
c. Signature of Authorized Representative:	d. Date 6/6/02

ASSURANCES AND CERTIFICATIONS

The State educational agency (SEA) hereby declares that it has filed the following assurances and certifications with the U.S. Department of Education, and, as of the date of the signature below, reaffirms and incorporates by reference those assurances and certifications with respect to the **Reading First Program**. The SEA certifies that no circumstances affecting the validity of these assurances have changed since their previous filing.

- As applicable, the assurances in OMB Standard Form 424B (Assurances for Non-Construction Programs), relating to legal authority to apply for assistance; access to records; conflict of interest; merit systems; nondiscrimination; Hatch Act provisions; labor standards; flood insurance; environmental standards; wild and scenic river systems; historic preservation; protection of human subjects; animal welfare; lead-based paint; Single Audit Act; and general agreement to comply with all Federal laws, executive orders and regulations.

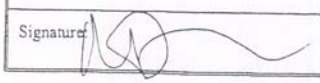
- The three certifications in ED Form 80-0013, regarding lobbying, debarment/suspension/responsibility status, and drug-free workplace. (A copy of the related debarment/suspension/responsibility assurances that the State is required to obtain from subgrantees and maintain on file (ED Form 80-0014) is attached for the SEA's information.)

- With respect to the Certification Regarding Lobbying, the SEA recertifies that no Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the making or renewal of Federal grants under this program; that the SEA shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," when required (34 C.F.R. Part 82, Appendix B); and that the SEA shall require the full certification, as set forth in 34 C.F.R. Part 82, Appendix A, in the award documents for all subawards at all tiers.

The SEA further agrees to:

- The certifications in the Education Department General Administrative Regulations (EDGAR) §76.104, relating to State eligibility, authority and approval to submit and carry out the provisions of its State plan, and consistency of that plan with State law.

- The assurances in section 9304 of the Elementary and Secondary Education Act (ESEA), in accordance with the SEA's consolidated plan.

Name of Applicant: New Hampshire Department of Education	Program: Reading First
Printed Name and Title of Authorized Representative of the State: Nicholas C. Donohue Commissioner, New Hampshire Department of Education	
Signature: 	Date: 6/6/02

New Hampshire Reading First Plan

ASSURANCE FOR NATIONAL EVALUATION

The Reading First SEA and the Reading First LEAs will agree to participate, if asked, in the national evaluation of the Reading First Program.

Signed Janet L. Cataldo Date 6/6/02
Reading First/REA Coordinator

Signed Dorothy C Fair Date 6/6/02
Title I Coordinator

Signed Date 6/6/02
Authorized Representative

INTRODUCTION

The purpose of the New Hampshire Reading First Program is to assist "local educational agencies in establishing reading programs for students in kindergarten through Grade 3 that are based on scientifically based reading research, to ensure that every student can read at grade level or above not later than the end of Grade 3" (No Child Left Behind, Part B—Student Reading Skills Improvement Grants, Subpart 1—Reading First, SEC. 1201.Purposes, p.178). To accomplish this goal, state and local educational agencies (i.e., SEAs and LEAs) will (a) provide **professional development** "so the teachers can identify specific reading barriers facing their students and so the teachers have the tools to effectively help their students learn to read"; (b) provide assistance in selecting and administering a complete battery of **reading assessment** tools, including screening, diagnostic, progress monitoring, and outcome measures as well as classroom-based (or informal) measures; (c) provide assistance in "selecting or developing [as well as implementing] **effective instructional materials …, programs, learning systems, and strategies** to implement methods that have been proven to prevent or remediate reading failure"; and (d) "**strengthen coordination** among schools, early literacy programs, and family literacy programs to improve reading achievement for all children" (No Child Left Behind, Part B—Student Reading Skills Improvement Grants, Subpart 1—Reading First, SEC. 1201.Purposes, p.178–179).

The Reading First Program represents an aggressive effort to ensure that every child reads independently by the end of Grade 3. With such rigor are explicit expectations, the most prominent of which is adherence to the scientifically based reading research in all facets of the program (i.e., curriculum, assessment, instructional strategies, programs and materials, special populations of children, professional development, leadership, technical assistance, evaluation, coordination, and management). In New Hampshire's "Live Free or Die" state, these directives will present a challenge to how Reading First is carried out amid the strong sentiment of local control, especially for educational initiatives. However, the state recognizes and is committed to the importance of a scientifically based initiative that aggressively targets children who are at risk for not learning to read by the end of Grade 3. The state recognizes, in particular, that a sizable number of children in our state are at risk for not learning to read and do not perform well on the end-of-grade-3 state test. Now is the time for us to try something different with these children in a manner that is systematic, comprehensive, and consistent with the recommendations of scientific research.

How will we accomplish this different approach? Congress appropriated an unprecedented $900 million for Reading First for the 2002 fiscal year under the authority of Title I, Part B, Subpart I of the Elementary and Secondary Education Act, as amended by the No Child Left Behind Act of 2001. On approval of this application, the U.S. Department of Education will award annually to New Hampshire the small-state minimum of $2,158,750 as determined by formula according to the proportion of children age 5 to 17 who reside within the state and are from families with incomes below the poverty line. In turn, the state of New Hampshire's Department of Education will award competitive grants to eligible LEAs[1] in amounts that are

[1] "The term 'eligible local educational agency' means a local educational agency that (a) is among the local educational agencies in the State with the highest numbers or percentages of students in K–3 [who are] reading below grade level [based on] the most currently available data; and (b) has jurisdiction over a geographic area

of sufficient size and scope to enable LEAs to improve reading instruction and in relation to the number or percentage of K–3 students in that LEA who are reading below grade level. In addition, the state is allowed to reserve up to 20 percent of the Reading First funds for the purpose of building and maintaining statewide capacity to effectively teach all children to read by third grade. Funding will continue for the state, and hence local agencies, for 6 years, contingent on respective annual progress and 3-year outcome data.

In preparing this application, the state drew on the leadership of Janet Catalfano, Reading Excellence Act/Reading First coordinator and the Reading Experts Advisory Delegation (R.E.A.D.) team, which includes members from the Department of Education, the University of New Hampshire System, independent educational consultants, and local reading specialists (see State Leadership and Management section). In addition, the coordinator, Ms. Catalfano, consulted with the governor's Reading Leadership Team (see State Leadership and Management section) and other key constituents within the state, consultants from RMC, and Reading First coordinators from other states. Also, she considered key Reading First documents, including Reading First plans from other states. Finally, the coordinator and members of the R.E.A.D. team attended numerous federal workshops that were intended to foster the development of the Reading First application, including the following: the Secretary's Reading Leadership Academy (in Washington, D.C.), Teacher Reading Academies (in Austin, TX), Reading First Writer's Workshop (in Washington, D.C.), Teacher Reading Academies/Regional Dissemination Meeting (in Raleigh, N.C.), Developing a Framework for Reading First Assessment (in Washington, D.C.), and Characteristics of Effective Professional Development in Reading First (in Chicago, IL).

The remainder of this document addresses the requirements specified in the Application for State Grants for Reading First and includes the following sections: (a) Improving Reading Instruction; (b) State Leadership and Management; (c) State Reporting and Evaluation; and (d) Classroom Level Impact. The Improving Reading Instruction section constitutes the substance of the application by addressing current state reading initiatives and identified gaps, the rationale and implications for scientifically based reading research, the subgrant process for LEAs (including subgrant eligibility and the criteria and process for awarding subgrants), the state's professional development plan, and a description of how Reading First will be integrated with Reading Excellence Act activities. The State Leadership and Management section provides information about the state's technical assistance plan, statewide infrastructure, and the state's management plan. The State Reporting and Evaluation section describes the state's evaluation strategies, state reporting requirements, and assurances for participating in the national evaluation. Finally, the Classroom Impact section identifies key Reading First classroom characteristics and describes how Reading First activities will be integrated in a coherent manner.

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that includes an area designated as an empowerment zone, or an enterprise community…; or (c) jurisdiction over a significant number or percentage of schools that are identified for school improvement …; or (d) the highest numbers or percentages of children who are counted [under allocations for Title I]" (No Child Left Behind, Part B—Student Reading Skills Improvement Grants, Subpart 1—Reading First, SEC. 1201.Purposes, p. 203–204).

IMPROVING READING INSTRUCTION

Improving reading instruction is the fundamental cornerstone of the Reading First initiative. To ensure that every student is reading at grade level on or before third grade, we must carefully consider where we have been and where we need to go with respect to reading instruction. In particular, we must make sure that all educators who are responsible for reading instruction in schools eligible for Reading First are involved in high-quality professional development and that effective leadership and coordination is in place to sustain this effort. The purpose of this section of the application is to describe the specific ways in which New Hampshire plans to improve reading instruction in the state.

The seven parts to this section include (a) Current Reading Initiatives and Identified Gaps, (b) State Outline and Rationale for Using Scientifically Based Reading Research, (c) State Definition of Subgrant Eligibility, (d) Selection Criteria for Awarding Subgrants, (e) Process for Awarding Subgrants, (f) State Professional Development Plan, and (g) Integration of Proposed Reading First Activities with Reading Excellence.

Current Reading Initiatives and Identified Gaps

The purpose of this section is to describe current federal and state efforts as well as local efforts to improve K–3 reading achievement in eligible Reading First LEAs and schools. In addition, this section identifies gaps in current initiatives and programmatic needs related to scientifically based reading research.

Current Federal and State Reading Initiatives

Until very recently, New Hampshire was consistently 50th in the Union in state aid to education. Since 1998, when the State Supreme Court ordered the state to equalize funding among communities, school funding, which had been primarily based on a community's property tax, began to change. This change has had significant implications for educational reform throughout the state, especially in terms of enabling attempts to build statewide infrastructures that support these efforts. The following federal and state reading initiatives in New Hampshire have the goal to improve K–3 reading achievement. The initiatives described here are not intended to be an exhaustive list.

Reading Leadership Team

The New Hampshire Reading Leadership Team is a consortium of agencies, organizations, and programs dedicated to broadening and supporting family literacy services to all low-income and undereducated families in New Hampshire. Governor Jeanne Shaheen first called the team together as the New Hampshire Literacy Task Force in late 1996. Governor Shaheen and her staff saw a need to bring together all organizations and agencies in New Hampshire that had an interest in children's literacy services. The first meetings of the task force included members of the governor's staff, representatives from the State Department of

Education, the State Library, Head Start program, Community Action Programs, Campus Compact, and others.

Initially, the goal of the task force was to decide whether a need and desire existed in New Hampshire to apply for funding under the America Reads Challenge, through the Corporation for National Service. After establishing that the need and desire were there, the task force began working on two grant proposals simultaneously—an AmeriCorps*VISTA Summer Associates grant and a 3-year AmeriCorps grant to establish New Hampshire Reads. Both grants were successful, and the work of the task force was under way.

After starting up the New Hampshire Reads program, the task force faced the question of what to do next. During 1998, the task force decided to stay intact for further collaboration and sharing. The group adopted a new name—the New Hampshire Partnership for Literacy, drew up bylaws, and created committees. The partnership's new mission was to coordinate literacy initiatives for children and their families, with a primary focus on the initial development of literacy from birth to the end of Grade 3. Today, the partnership has been renamed the Reading Leadership Team (as it is called in Reading First legislation; see Building Statewide Infrastructure section for current composition of the team) and meets four or more times a year to keep abreast of issues in children's literacy and to take advantage of program opportunities as they arise. The team was instrumental in developing the Reading Excellence Act grant and has served in an advisory capacity to the implementation of the Reading Excellence Act grant and the development of the Reading First application.

Statewide Education Improvement and Assessment Program

In 1993, New Hampshire adopted the "Statewide Education Improvement and Assessment Program." In doing so, the state took an important step toward defining high standards and measuring the extent to which students and schools are reaching those standards. Specifically, the New Hampshire State Board of Education, in 1989, adopted the goal of developing an educational improvement and assessment program as one of its top priorities. In 1991, a 27-member steering committee submitted to the state legislature a detailed plan for developing state curriculum frameworks and implementing assessment strategies. In 1993, the legislature established the New Hampshire Educational Improvement and Assessment Program (NHEIAP) under RSA 193-C.

RSA 193-C is the cornerstone of the state's initiatives to continuously improve education for all students. As stated in the law, the purpose of NHEIAP is "to establish what New Hampshire students should know and be able to do and to develop and implement effective methods for assessing that learning and its application so that local decisions about curriculum development and delivery can be made." The law addresses two critical components:

> New Hampshire Education Improvement and Assessment (NHEIAP). The New Hampshire Education Improvement and Assessment (NHEIAP), developed by Measured Progress, is the statewide test used to assess all of New Hampshire's third graders at the end of the school year in Language Arts and Mathematics. The test is

based, in part, on New Hampshire's Language Arts and Mathematics Frameworks. The Department of Education has end-of-grade three data for the years 1994 through 2002. The scaled scores, which measure academic proficiency, are published by the Department of Education and represent "the mean scaled scores of all the students for the school/district at that grade level." Scores between 200-239 are ranked as novice achievement, scores between 240-259 are ranked as a basic achievement, scores between 260-279 are deemed proficient, and scores between 280-300 reflect advanced achievement.[2]

K-12 English Language Arts Curriculum Framework. In accordance with RSA 193-C relative to the New Hampshire Educational Improvement and Assessment Program (NHEIAP), the purpose of the K–12 English Language Arts Curriculum Framework is to serve: (a) as the basis for the development of assessment instruments to be administered, statewide, at the end-of-grades three, six, and ten; and (b) as a guide for making local decisions about curriculum development and delivery. The framework establishes educational standards that define what New Hampshire students should know and be able to do in English language arts. Curriculum decisions, including overall organization, specific grade-level and course offerings, methods, activities, and materials, remain the responsibility of local educators and school board members. The framework is based on the significant body of research in English language arts and best instructional practices carried out over the past thirty years. In addition, the framework represents broad consensus among educators at all levels, business people, government officials, community representatives, and parents about what students should know and be able to do in English language arts. (Taken from English Language Arts Curriculum Framework.)

Best Schools

Schools selected for this program receive funds to promote excellence in teaching and quality learning environments. Local teams set goals for school improvement and select measurable standards to track their progress. Benchmarks include more students reading at grade level and better test scores. The Nellie Mae Foundation has dedicated $1 million for 5 years to this effort. The state of New Hampshire has contributed $5.9 million to date for the Best Schools initiative.

Distinguished Educator Program

The Department of Education's Curriculum and Instruction Division has hired two highly trained and experienced educators to work with schools that have shown low achievement in language arts on the New Hampshire Educational Improvement and Assessment Program (NHEIAP). These educators meet with teachers and administrators, review the assessment data as well as the state frameworks for language arts, support efforts to implement local

[2] Note that basic scores in New Hampshire require more proficiency than the National Assessment of Educational Progress (NAEP) standardized tests.

language arts curriculum, lead study groups for teachers, and demonstrate lessons in classrooms.

Reading Excellence Act

The purposes of the Reading Excellence Act program are to (a) teach every child to read by the end of third grade, (b) provide early literacy instruction and transition programs to preschool and kindergarten children, (c) expand the number of high-quality family literacy programs, (d) provide early intervention to children who are at risk for inappropriately being identified for special education, and (e) provide instructional programs—including tutorial programs—that are based on scientifically based reading research. The state received a REA grant from the federal government for $3 million in July 2001 to be used over 3 years. Eleven schools in the districts of Nashua, Manchester, Seabrook, Rumney, Stark, Stratford, and Stewartstown were chosen for grant awards. All K–3 teachers and other educators responsible for reading instruction in the schools have participated in professional development that focuses on scientifically based reading research and on the use of assessments to inform instruction and evaluate the program. Each REA school has adopted different instructional frameworks (e.g., Rigby, Literacy Collaborative, Heinemann's First Steps, Four Blocks, and custom-designed programs) to be used in conjunction with the scientifically based reading research.

Reading Recovery

The purpose of the Reading Recovery program is to provide tutorial services to first-grade children who are identified as being at risk for not learning to read. The Reading Recovery program in New Hampshire has been in operation since 1990. The state has paid for the training of teacher leaders and for the training of Reading Recovery teachers. To date, 378 teachers have been trained to provide this supplemental first-grade intervention program.

University System of New Hampshire Initiatives

Over the last quarter century, the University System of New Hampshire (USNH) has been a regional and national leader in teacher education and research into the development of reading and writing. USNH and its institutions (College for Lifelong Learning, Keene State College, Plymouth State College, the University of New Hampshire, and UNH-Manchester) have pioneered a 5-year, undergraduate- and graduate-level program devoted to the preparation of teachers. Under the leadership of Donald Graves, New Hampshire teachers and university faculty have become leaders in studying approaches to teaching children to write and, under the leadership of Jane Hansen, have become leaders in studying the central role of children's literature in developing literacy. Graduates of the USNH have been appointed to positions in major research institutions and state departments of education, and they continue to play key roles in research and professional development efforts.

USNH has been responsible for a number of literacy-related initiatives. Recently USNH, under the College for Lifelong Learning, launched an effort to provide statewide training for paraprofessionals to assist teachers in the delivery of high-quality, research-based

instructional strategies in reading. In addition, USNH has assumed a leadership role in providing continuing education and professional development in literacy for educators around the state, including the annual New Hampshire Literacy Institute, Keene State College Children's Literature Festival, and the award-winning Learning Through Teaching program that emphasizes the teaching of reading, writing, and literature.

The USNH has spearheaded projects that have become statewide initiatives. For example, for a spring conference in 1998, the University of New Hampshire Learning Through Teaching program brought in Ellin Keene to talk about the teaching of comprehension. Then, a team of five educators attended several days of Keene's workshops in Denver. This team returned to New Hampshire and made presentations throughout the state. Interest grew, and in the summer of 2000, the Concord School District and the New Hampshire Department of Education brought Ellin Keene to New Hampshire and opened the workshop to teachers statewide. In addition, last summer, Stephanie Harvey and some colleagues came to New Hampshire to present a series of workshops on teaching comprehension strategies. New Hampshire teachers have formed study groups to examine *Mosaic of Thought* by Ellin Keene and *Strategies That Work* by Stephanie Harvey and Anne Goudvis. This spring, the Granite State Council of the International Reading Association sponsored a meeting to which 400 teachers came to hear Stephanie Harvey speak.

Granite State Reading Council (GSRC)

The Granite State Reading Council is an organization that (a) supports the development of lifelong readers and writers through literacy programs, (b) promotes opportunities for professional growth and encourages the exchange of effective practices, and (c) acknowledges accomplishments of professionals in the field. Established more than 50 years ago, the council is an organization that provides its membership with an opportunity to unite with individuals who are promoting effective reading instruction and supporting literacy throughout New Hampshire. It currently has more than 500 members who create a strong support and networking system for any individual concerned with promoting literacy in the state (e.g., teachers, parents, reading specialists, administrators, librarians). The council's newsletter keeps members abreast of current issues in education, state initiatives in literacy, grants and awards for distinguished educators, links to the International Reading Association, and professional development opportunities. The council's executive board includes highly qualified and experienced classroom teachers, Title I supervisors, reading specialists, and administrators. A state department of education representative is a member of the executive board and is a valuable liaison between educators and the communities of New Hampshire. Many of the council's members are also members of the New England Reading Association, which enables its outreach to expand to the entire Northeast region.

New Hampshire Association for Supervision and Curriculum Development (NHASCD)

New Hampshire Association for Supervision and Curriculum Development is an affiliate of International ASCD and has a mission to provide quality educational leadership in the state of New Hampshire. NHASCD sponsors conferences featuring world-class educators, hosts networking opportunities for educators in New Hampshire, publishes the *New Hampshire*

Journal of Education in collaboration with Plymouth State College, and keeps members informed with the newsletter *The Forum* and a Web page (www.nhascd.org; see also www.ascd.org). In addition to considering issues that are relevant to the improvement of reading instruction, the NHASCD hosts professional development opportunities. For example, the NHASCD conference series for 2002–2003 will be "Three Visions of Literacy," featuring Dottie Hall, Ellin Keene, and Vickie Spandel, and will provide professional development on the Four Blocks program, reading comprehension, and assessing writing.

New Hampshire Even Start Statewide Family Literacy Initiative

New Hampshire Even Start is an initiative designed to break the cycle of poverty and illiteracy by improving educational opportunities for low-income families. New Hampshire has five Even Start sites located in the communities of Claremont, Concord, Dover-Somersworth, Nashua, and Ossipee-Effingham. The Even Start programs work with a total of approximately 150 families to improve literacy opportunities for low-income families by integrating components of early childhood education, adult literacy or adult basic education, parent education, and parent-child interactive literacy activities into a unified family literacy program. The Even Start program requires a cooperative partnership between a school district and a community-based organization. New Hampshire Reading First will collaborate with New Hampshire Even Start by participating on the New Hampshire Family Literacy Initiative Leadership Team and by consulting with the Family Literacy Initiative Partners in areas of program development and instructional practice (see http://www.ed.state.nh.us/integrated programs/compensatory.htm).

New Hampshire Parent Information and Resource Center (NH PIRC)

The NH PIRC project is the state affiliate leader for the Parents as Teachers (PAT) program. New Hampshire currently has 25 PAT providers around the state. The PAT program offers parents of children from birth to 5 years practical and research-based strategies to encourage their children's intellectual growth, language, and social and motor skills. Literacy is a major focus of the PAT program. In an effort to further promote early learning, the NH PIRC program also trains New Hampshire Reads volunteers in a workshop titled, "Bonding with Books." The volunteers share this information with the families of preschoolers, allowing young children and their parents to discover the joys of reading together. This workshop assists parents in developing their child's prereading skills.

The New Hampshire Parent Information and Resource Center (NH PIRC) program supports the current goal of the federal administration to have every child reading well by the end of third grade. Research has shown that a child's success in school is determined by how well he or she reads and by the extent to which parents are involved. NH PIRC partners with parents, educators, school districts, and the New Hampshire Department of Education to promote learning-at-home activities in an effort to increase children's academic success. NH PIRC's literacy series titled, "Help Your Child Learn to Read," provides parents of children in grades K–3 with information on the benefits of reading, reviews the ways children gradually acquire literacy skills, and discusses how to match books to the interest and developmental stages of children in the early elementary years. The NH PIRC project

recently received funding from Verizon Communications to expand its Literacy Learning at Home activity. This funding will allow the group to produce a video highlighting the strategies parents can use to support and enhance the reading abilities of their children. The video will be distributed to local cable television, schools, parenting programs, and family resource centers.

New Hampshire Reads AmeriCorps Program

In 1997, New Hampshire Reads began as a statewide initiative that engaged AmeriCorps and AmeriCorps*VISTA members in bringing literacy-rich activities to children from birth through third grade and to families in economically disadvantaged situations. The mission of New Hampshire Reads is to ensure that every child in New Hampshire becomes an independent, fluent, motivated reader by the end of third grade. By providing greater exposure to reading materials, more practice in reading, and conversations about books, New Hampshire Reads helps children develop emergent and early literacy behaviors that are part of becoming successful lifelong readers (see http://www.volunteernh.org/nhreadsamericorps.htm).

New Hampshire Adult Literacy Programs

The Department of Education's Bureau of Adult Education provides grants to school districts and private not-for-profit organizations for the purposes of offering educational services to adults who have not received a high school diploma or GED certificate or who do not read, write, or speak English. With funds provided by the Bureau of Adult Education, local communities provide services to adults whose skills range from very basic to high school level. Each New Hampshire county has an adult tutorial program, which provides one-on-one tutoring with trained volunteers for any student who meets the eligibility criteria. The bureau works with community partners to carry out the three goals of the Adult Education and Family Literacy Act: (1) assist adults to become literate and gain or improve employment as well as become self-sufficient, (2) assist parents to become full partners in their children's educational development, and (3) assist adults in their completion of secondary school education.

Local Efforts in LEAs and Schools That Are Eligible for Reading First

Although the R.E.A.D. team was not able to engage in a comprehensive survey of the LEAs and schools that are eligible for Reading First, the team was able to discern a sampling of local efforts in eligible Reading First LEAs and schools, a sampling based on the collective work experiences of the R.E.A.D. team. For example, one team member works in 42 different schools, 16 of which are eligible for Reading First. Other team members, including Department of Education consultants and Reading Excellence Act coordinators, were able to describe the activities of many of the remaining schools that were eligible for Reading First.

Although the schools eligible for Reading First vary in size (from 40 to 800 students) and location (from very rural to urban), they all have in common the characteristics that make them eligible for Reading First, including a large number of children who are not reading on

grade level by the end of Grade 3, who are identified as being at risk because of high poverty numbers or percentages, and who often come from limited literacy opportunities in the home. Described below are several activities associated with a sampling of the schools eligible for Reading First, including curriculum, assessment, instruction, and professional development activities. Schools will be expected to engage in a more detailed analysis as part of the subgrant application process.

In the area of curriculum, a number of schools eligible for Reading First have only recently become thoroughly familiar with the state curriculum frameworks—and even their own school curriculum. Moreover, school curricula are typically not aligned with scientifically based reading research (SBRR); most of these documents fail to address critical components such as phonemic awareness and fluency. Teachers in many of the schools eligible for Reading First have expressed a desire for a more user-friendly, grade-specific curricular document that could inform their teaching and the assessment of their children.

Assessment practices vary tremendously across a number of the schools that are eligible for Reading First. Few teachers, except third grade teachers, have had the opportunity to review and analyze the state's end-of-third-grade NHEIAP results. When given the opportunity, teachers are often surprised by the complexity of the test and how the test items and the results give them specific ideas for what they could be working on in the classroom. In addition to the state test, schoolwide standardized tests, informal tools, or both often have been used to varying degrees of effectiveness. Of particular concern is the lack of attention paid to consistent administration of these measures and to accurate interpretation of the results. For a number of schools, the concept of using assessment to inform instruction, though familiar in principle, has not been explicitly demonstrated or consistently addressed.

In the area of instruction, a wide array of instructional programs, strategies, and materials are used in a number of the schools eligible for Reading First. Although many are using basal programs—either as a core program or as supplemental materials—the instructional approaches of these schools can best be described as eclectic. Many teachers incorporate knowledge they have learned from a variety of professional development opportunities and reading programs or frameworks (e.g., First Steps, Four Blocks, Literacy Collaborative).

Finally, professional development opportunities in some of the schools eligible for Reading First are often characterized as half- or full-day experiences that are organized by the school principal to address immediate needs (e.g., bullying, emergency plan, professional development plan, curriculum revisions). Schools that are involved in some of the federal and state initiatives (as described above) typically have more opportunities to engage in extensive professional development. However, many of these initiatives are not adequately informed by SBRR or coordinated with other professional development experiences. Although the activities described above could characterize a number of schools in the state of New Hampshire, the schools eligible for Reading First are unique in that they have a large population of high-need students who are not performing well in reading by the end of Grade 3. In a state that typically has performed well on the National Assessment of Educational Progress (NAEP), we must not overlook this group of students whose needs we need to

aggressively target by providing systematic and explicit instruction based on the scientifically based reading research.

Current Identified Gaps

Although the state of New Hampshire has certainly exerted tremendous effort in attempting to improve K–3 reading instruction, several gaps have been identified in the current initiatives and programmatic needs related to scientifically based reading research (SBRR). These gaps highlight the need for the following priorities, each of which is addressed in more detail below:

- State and local priority to ensure every student can read at grade level or above not later than the end of Grade 3
- Coordination of literacy initiatives among state and local agencies
- Dissemination of scientifically based reading research
- Activities informed by scientifically based reading research, including
    - Curriculum alignment
    - Valid and reliable assessments for K–3
    - Instructional strategies, programs, and materials
    - Strategies to meet the needs of special populations
    - Professional development
    - Leadership, technical assistance, and evaluation

Every Student Reading: A State and Local Priority

For the Reading First program to effectively "take hold" in the state of New Hampshire, state and local agencies need to agree and clearly articulate that the primary goal of this initiative is a priority. That is, state and local agencies need to establish as one of their primary commitments the goal of ensuring that every student can read at or above grade level not later than the end of Grade 3. An agency that articulates this priority and establishes its commitment to this goal with specific action plans is then held accountable, especially by the public, for evaluating the extent to which it has met the priority. At the state level, the New Hampshire Reading First Program proposes that this priority be articulated by the Department of Education, particularly for the proposed Early Literacy Management Group (see State Leadership and Management section) and by the University System of New Hampshire's Education Department. At the local level, LEAs and schools must demonstrate broad-based support for this priority by including in their Reading First applications assurances that are provided by the school board, administrators, and the education team responsible for delivering K–3 reading instruction. Both state and local agencies will be expected to evaluate the extent to which this priority is being upheld.

Coordination of Literacy Initiatives

Perhaps most critical to successfully carrying out the Reading First program is the need for effective, broad-based leadership and coordination at the state and local levels among various stakeholders concerned with or responsible for K–3 reading instruction. Clearly, across the

various initiatives described above (i.e., legislative, Department of Education, USNH, professional organizations, and others) a tremendous amount of energy and commitment has been devoted to literacy in the state of New Hampshire. However, in the process of developing the Reading First plan, the R.E.A.D. team could not help but notice that many of the individuals who are responsible for carrying out these initiatives work in isolation from one another. The team found this observation to be particularly problematic for schools that are eligible for Reading First and that might also be involved in more than one initiative; these schools would likely receive conflicting information or recommendations with respect to K-3 reading instruction. Even though not all agencies (or the individuals associated with these agencies) will agree with the tenets of the Reading First program, the critical need still remains: to work from a common knowledge base and examine the underlying assumptions of a variety of initiatives (Moats, 2002). To address this gap, New Hampshire's Reading First plan proposes several activities for ensuring effective, broad-based leadership and coordination at the state and local level (see State Professional Development Plan and State Leadership and Management sections).

Dissemination of Scientifically Based Reading Research

Although many of the initiatives in New Hampshire are admirable and ambitious, the R.E.A.D. team suspects that many of these initiatives do not adequately reflect the scientifically based reading research (SBRR). The need is critical in the state of New Hampshire for the widespread dissemination of SBRR across state and local agencies to establish a common knowledge base, promote deep understanding, and ensure the delivery of a consistent message across various initiatives. All educators who are responsible for or concerned with improving K–3 reading instruction need to know more about SBRR, even if not all educators across the state agree with the tenets of Reading First. This knowledge base has specific implications for Reading First activities and for other literacy-related initiatives that may need to work in tandem with Reading First.

Activities Informed by Scientifically Based Reading Research

At the state and local level, educators need to understand the *practical implications* of the scientifically based reading research (SBRR). In particular, educators need to know how SBRR informs the activities of Reading First, including curriculum, assessment, instructional strategies, programs and materials, special populations, professional development, leadership, technical assistance, and evaluation. The sections that follow outline specific state and local gaps that need to be informed by scientifically based reading research.

Curriculum alignment. At the state level, the curriculum frameworks need to reflect the curricular implications of SBRR; in addition, specific grade level benchmarks that are consistent with SBRR need to be articulated. At the local level, LEAs and schools need to align their school curriculum with SBRR and articulate specific grade-level benchmarks. These local activities are required under the New Hampshire Reading First program, and professional development and technical assistance will be provided at the state level for these purposes.

Valid and reliable assessments for K–3. At the state and local level, children's progress in the essential components of reading (i.e., SBRR) needs to be monitored more closely before the end-of-third-grade NHEIAP test. Reading First, eligible LEAs, and schools will be required to use screening, diagnostic, progress monitoring, and outcome measures as well as classroom-based tools to inform classroom instruction. Professional development and technical assistance will be provided at the state and local levels to ensure proper administration as well as proper analysis and use of the assessment data to inform instructional decisions.

Instructional strategies, programs, and materials. If administrators and educators at the state and local levels have a thorough understanding of SBRR, then classroom educators will have access to a consistent knowledge base for the research-based instructional strategies that are most effective for K–3 reading instruction. This knowledge base, along with the curricular and assessment implications of SBRR, serves as an invaluable resource for evaluating and selecting a comprehensive reading program and identifying supplemental materials that can be used to address gaps in a reading program and provide different levels of intervention. At the state level, agencies must be familiar with this knowledge base in order to make decisions regarding Reading First, as well as other literacy initiatives, including the design of professional development opportunities and the provisions to provide technical assistance. At the local level, educators need to be familiar with this knowledge base to ensure the careful evaluation and selection of a comprehensive reading program, the identification of gaps in the program, and the evaluation and selection of supplemental materials and programs to meet children's varying needs.

Special populations. Although many of the initiatives associated with the Department of Education intentionally target children from special populations (e.g., special education, migrant, homeless, ELL, economically and educationally disadvantaged), the specific implications of SBRR for these populations needs to be articulated at the state and local levels. Specifically, agencies need to know the effectiveness of research-based instructional strategies with different populations of children. Given the limited knowledge base provided by the National Reading Panel, the New Hampshire Reading First program is requesting technical assistance from the federal government for this purpose.

Professional development. The knowledge base informing professional development opportunities at the state and local levels must be grounded in SBRR to ensure that educators are receiving consistent guidance and support. Moreover, the professional development providers must have a deep understanding of SBRR to effectively communicate this knowledge base and assist teachers in applying this knowledge to practice.

Leadership, technical assistance, and evaluation. Similarly, the knowledge base informing leaders, technical assistance providers, evaluators, and those managing coordination efforts (see above—Coordination of Literacy Initiatives) at the state and local levels must be grounded in SBRR to ensure that educators are receiving consistent guidance and support. Without this knowledge base, the New Hampshire Reading First program will be seriously compromised.

Summary of Current Reading Initiatives and Identified Gaps

The preceding section described current federal and state efforts as well as local efforts to improve K–3 reading achievement in eligible Reading First LEAs and schools. In addition, this section identified gaps in current initiatives and programmatic needs related to scientifically based reading research. The purpose of the next section is to describe the specific ways in which the scientifically based reading research can be used to address these gaps.

State Outline and Rationale for SBRR

The purpose of this section is to provide the state outline and rationale for the scientifically based reading research (SBRR). An understanding of SBRR forms the foundation on which many of the decisions for the New Hampshire Reading First program are based. Specifically, this section of the state application demonstrates how the SBRR informs the state's plans and activities for improving K–3 reading instruction at the state and local level. Therefore, this section is written not only to address the federal requirements of the Reading First grant but also to inform and guide LEAs who will be involved in New Hampshire's Reading First subgrant process as well as state and local leaders who will assume responsibility for guiding this initiative.

To provide the state's outline and rationale for SBRR, this section addresses three areas of focus. First, we provide a general introduction to SBRR so the reader of this document has a basic understanding of its development and original intent. Second, we present a detailed review of the scientifically based reading research for each of the five SBRR components emphasized in the Reading First initiative (i.e., phonemic awareness, phonics, fluency, vocabulary, and comprehension). This review includes the following for each component: a definition, the rationale for its inclusion, and the implications the component has for practice (i.e., curriculum, assessment, instructional strategies, instructional programs and materials, special populations, and professional development). Finally, we step back from each of the five SBRR components and examine the broader, collective implications that this scientific research base has for carrying out the New Hampshire Reading First program. The importance of a thorough and practical understanding of SBRR cannot be underestimated in a project of this magnitude; this knowledge base provides a critical foundation on which many decisions are made to effectively reach children who are at risk for not reading at grade level or above on or before Grade 3.

Overview: The Development and Original Intent of the Scientifically Based Reading Research

The purpose of this section is to understand the overall rationale for the emphasis that is placed on SBRR in the Reading First program. To accomplish this task, we need to look at the supporting research documents that help us to understand the development of SBRR. In addition, we need to look at the Reading First legislation to become familiar with the terminology and underlying assumptions that inform the intent of the law.

Supporting Research Documents

The scientifically based reading research is summarized in three primary documents (see Appendix A for excerpts explaining the purpose of each document):

- *Preventing Reading Difficulties in Young Children* (Snow, Burns, & Griffin, 1998) published by the National Research Council.

- *Teaching Children to Read: An Evidence-Based Assessment of the Scientific Research Literature on Reading and Its Implications for Reading Instruction* (National Reading Panel, 2000)
- *Put Reading First: The Research Building Blocks for Teaching Children to Read, Kindergarten through Grade 3* (Armbruster, Lehr, & Osborn, 2001) published by the Center for the Improvement of Early Reading Achievement

The National Reading Council (NRC) committee, in their *Preventing Reading Difficulties* (Snow, Burns, & Griffin, 1998) report, identified key research findings that inform our understanding of early reading development, risk factors for children learning to read, and key intervention and prevention strategies. The NRC also identified alphabetics (i.e., phonemic awareness and phonics), fluency, and comprehension as key components of reading instruction. The National Reading Panel (NRP), in their *Teaching Children to Read* (NRP, 2000) report, advanced the work of the NRC committee by identifying the research base that informs what they referred to as five essential components of instruction critical to the development of children as readers, including phonemic awareness, phonics, fluency, vocabulary, and comprehension. Finally, the Center for Improvement of Early Reading (CIER), in consultation with classroom teachers, published the *Put Reading First* (Armbruster, Lehr, & Osborn, 2001) document, making much of the NRP's scientific research base more readily available to classroom teachers.

Examining these three supporting research documents (see Appendix A), we are able to discern that five essential components of reading instruction were identified as a result of several events: (a) a close analysis of the NRC's report, (b) a series of public hearings held by the NRP, and (c) the NRP's deliberations on how to narrow its search to critical topics in reading instruction. The identification of five essential components of reading instruction was further substantiated in the NRP's report when the panel identified each component's respective theoretical, research, and historical import within the field of reading (see next section—Detailed Analysis of SBRR).

The Reading Excellence Act (REA) initiative alerted many educators to the scientifically based reading research produced by the NRP and encouraged educators to use this research to inform instruction, particularly in light of National Assessment of Educational Progress (NAEP) results for fourth graders. When disaggregated, the NAEP results showed that a larger percentage of children who qualified for free and reduced lunch (compared to those who did not qualify) were performing at the "below basic" level. The REA initiative, therefore, was intended to help these particular children who were at risk for not learning to read so they could read at grade level not later than the end of Grade 3.

However, recent reports from the federal government have expressed concerns about the effectiveness of the REA initiative because many sites around the country did not adequately adhere to this research base. More recent NAEP (2001) results indicate that, still, a large proportion of children who qualify for free and reduced lunch are continuing to perform at the "below basic" level (U.S. DOE, 2002). The Reading First initiative, therefore, is a more rigorous effort to require schools that are eligible for Reading First to adhere to the scientifically based reading research outlined by the National Reading Panel.

The supporting research documents that are cited above provide us with some understanding for the development and importance of SBRR. However, an analysis of the terms used in the Reading First legislation, as described below, further shows how SBRR is central to the Reading First initiative.

Reading First Legislation

As quoted in the opening introduction to this application, the legislation states that the primary purpose of Reading First is

> to provide assistance to State educational agencies and local educational agencies in establishing reading programs for students in kindergarten through Grade 3 that are based on scientifically based reading research, to ensure that every student can read at grade level or above not later than the end of Grade 3. (No Child Left Behind, Part B—Student Reading Skills Improvement Grants, Subpart 1—Reading First, SEC. 1201.Purposes, p.178)

In this statement, the scientifically based reading research is what ensures that "every student can read" at grade level or above not later than the end of Grade 3. Therefore, to achieve this goal, reading programs in kindergarten through Grade 3 must be based on SBRR. Clearly, the scientifically based reading research is (a) the pivotal construct responsible for meeting the primary goal of the Reading First initiative and (b) has specific implications for various activities necessary to carry out the primary goal of the program (i.e., the reading program, including assessment, instruction, special populations, professional development, etc.).

Several terms used in the Reading First legislation help us to further understand the centrality of SBRR and the goals of the Reading First initiative. Unless otherwise noted, the following definitions were obtained from the Reading First legislation.

First, the reference to "every student" in the Reading First legislation means that all students are expected to read at grade level or above not later than third grade. Why is this statement so critical? As noted above, recent NAEP (2001) results, when disaggregated, indicate that a large proportion of children who qualify for free and reduced lunch are performing at the "below basic" level (U.S. DOE, 2002). The Reading First initiative operates on the following premises:

- All but a very small number of children can be taught to be successful readers.
- Prevention of reading problems is far more cost effective and efficient than remediation.
- Reading failure can be prevented by relying on an extensive scientific research base in reading. (U.S. DOE, 2002)

Therefore, the goal of reaching "every student," including many of the children who are not performing well on the NAEP, is attainable if reading instruction is based on SBRR.

Moreover, this statement implies an underlying assumption that the ability to read effectively is critical to the success of a child's future school career.

Second, the reference to "students in kindergarten through Grade 3" is emphasized because, for this group, reading instruction focuses on learning to read instead of reading to learn (U.S. DOE, 2002). The scientifically based reading research identifies the age range of this group as being optimal for teaching children how to read so they can better handle the academic expectations of later schooling.

Third, the reference to "reading programs" assumes that children who are at risk for not learning to read will be most effectively taught if teachers use a comprehensive reading program based on SBRR. Furthermore, the legislation assumes that a well-crafted program will support the process of effective and efficient decision making rather than take away from or interfere with teachers' professional judgment.

Fourth, the term *reading* is defined by the legislation as

> a complex system of deriving meaning from print that requires all of the following:
> (A) The skills and knowledge to understand how phonemes, or speech sounds, are connected to print.
> (B) The ability to decode unfamiliar words.
> (C) The ability to read fluently.
> (D) Sufficient background information and vocabulary to foster reading comprehension.
> (E) The development of appropriate active strategies to construct meaning from print.
> (F) The development and maintenance of a motivation to read. (No Child Left Behind, p. 205)

Although other components of a reading program are acknowledged as important (e.g., spelling, writing, oral language), these five components discussed in this section are considered to be the essential features characterizing a skilled reader.

Fifth, the scientifically based reading research, which is alternatively referred to as the essential components of reading instruction, logically follows from the definition of reading by referring to explicit and systematic instruction in the following:

> (A) phonemic awareness;
> (B) phonics;
> (C) vocabulary development;
> (D) reading fluency, including oral reading skills; and
> (E) reading comprehension strategies. (No Child Left Behind, p. 205)

A comprehensive reading program must address these SBRR components, at a minimum, to foster skillful reading.

Sixth, the legislation defines the term *scientifically based research* as research that

> (A) Applies rigorous, systematic and objective procedures to obtain valid knowledge relevant to reading development, reading instruction, and reading difficulties; and
> (B) includes research that—
>
> (i) employs statistical, empirical methods that draw on observation or experiment;
> (ii) involves rigorous data analyses that are adequate to test the stated hypotheses and justify the general conclusions drawn;
> (iii) relies on measurements or observational methods that provide valid data across evaluators and observers and across multiple measurements and observations; and
> (iv) has been accepted by a peer-reviewed journal or approved by a panel of independent experts through a comparably rigorous, objective, and scientific review." (No Child Left Behind, p. 205)

In other words, relying on just any reading research is not a sufficient approach on which to base instructional decisions for how to best reach children who are at risk for not reading at grade level, especially by the end of Grade 3. Rather, the reading research must be the scientifically based reading research that ensures instructional practices that foster the essential components observed in skillful readers.

In summary, the supporting research documents and the terminology associated with the Reading First legislation help us to understand the centrality of SBRR as the primary means to attain the goal of every student reading at grade level on or before Grade 3. As outlined by New Hampshire's current initiatives and gaps section, attempts have been made within the state to effectively reach children who are at risk for not learning to read. These specific initiatives include REA, Reading Recovery, Project Read, Best Schools, family literacy programs, and others. Although each initiative has certainly moved the state forward in our quest to more effectively reach children who are identified as being at risk, each has also demonstrated shortcomings.

Most notably reflecting these shortcomings are certain schools that have a sizable population of children who continue to perform at the novice level on the state assessment test. Although most of these schools have had access to some or even many of these initiatives, the fact remains that many children in these schools are still not making adequate progress to read independently by the end of Grade 3. The Reading First initiative offers the state an alternative, albeit one that requires more rigorous effort, to reach these children by insisting that schools adhere closely to the research-based practices known to contribute to reading achievement.

The purpose of this section was to provide the reader with an understanding for how SBRR evolved and why it is so important to the Reading First initiative. The purpose of the section that follows is to demonstrate in detail how the scientifically based reading research informs the state's plans and activities for improving K–3 reading instruction. This review will specify exactly what is intended when schools are asked to adhere to the scientifically based

reading research to ensure that every student can read at grade level or above not later than the end of Grade 3.

Detailed Review of the Scientifically Based Reading Research

The sections that follow will summarize what we know about the scientific research base informing five essential components of reading: phonemic awareness, phonics, fluency, vocabulary, and comprehension. Each section provides a definition, the rationale for focusing on each component, and the practical implications the scientific research base has for each component in terms of curriculum, assessment, instructional strategies, programs and materials, special populations, and professional development. Each section draws largely from the National Reading Panel (NRP) report and the *Put Reading First* (PRF) document in an effort to stay close to the scientific research base informing the Reading First initiative. Before launching into this detailed review, the following brief explanations for each category addressed under each SBRR component (i.e., definition, rationale, and implications for practice) will provide an orientation.

Definition. Each component is defined using one or more of the following: the NRP report, the PRF document, and the legislation. The definition that most accurately expresses the intent of all three documents is used; in some cases, the definition is drawn from more than one of these documents if it provides the reader with additional insight with respect to the component's scope.

Rationale. The rationale for why each component was selected as one of five SBRR components is included. Often, the rationale is based on three factors: its theoretical significance, its research base, and its historical and popular importance. The rationale is provided so those who are involved in New Hampshire's Reading First initiative are clear about why it was included among the five SBRR components.

Implications for practice. Each component is examined in terms of its implications for practice, specifically, curriculum, assessment, instructional strategies, programs and materials, special populations, and professional development. A brief explanation for each of these practical components follows.

The *curricular* implications of each component are identified to assist educators in identifying the knowledge base (i.e., what children must know and be able to do) that should be reflected in curricular documents at the state and local level as well as in a comprehensive reading program. The curricular implications outlined in this document as well as in the NRP report and PRF document provide the necessary guidance to educators for the purpose of evaluating and aligning curricular documents.

The *assessment* implications of each component are addressed to ensure that educators have some understanding of how each component is best assessed (as determined by the NRP's review of the research) and to meet the legislative and Reading First requirements to include a complete battery of assessment tools. According to the Reading First legislation and the Secretary's Reading Leadership Academy, a complete battery of assessment tools (a) must

include a combination of screening, diagnostic evaluation, progress monitoring, and outcome assessment measures, as well as classroom-based or informal measures, (b) must meet the criteria for being "valid, reliable, and based on scientifically based reading research," and (c) must assess each of the five SBRR components for kindergarten through Grade 3 (No Child Left Behind, p. 205–206; Secretary's Reading Leadership Academy, p. 2). Briefly, the legislation and the Secretary's Reading Leadership Academy define each of the tools as follows:

- **Outcome Measure Tools.** "Assessments that provide a bottom-line evaluation of the effectiveness of the reading program" (U.S. DOE, 2002, p. 2).
- **Screening Reading Assessment.** "The term 'screening reading assessment' means an assessment that is (i) valid, reliable, and based on scientifically based reading research; and (ii) a brief procedure designed as a first step in identifying children who may be at high risk for delayed development or academic failure and in need of further diagnosis of their need for special services or additional reading instruction" (No Child Left Behind, p. 206).
- **Diagnostic Reading Assessment.** "The term 'diagnostic reading assessment' means an assessment that is (i) valid, reliable, and based on scientifically based reading research; and (ii) used for the purpose of (I) identifying a child's specific areas of strengths and weaknesses so that the child has learned to read by the end of Grade 3; (II) determining any difficulties that a child may have in learning to read and the potential cause of such difficulties; and (III) helping to determine possible reading intervention strategies and related special needs" (No Child Left Behind, p. 206).
- **Progress Monitoring Tools.** "Assessments that determine if students are making adequate progress or need more intervention to achieve grade level reading outcomes" (U.S. DOE, 2002, p. 2). Progress monitoring tools need to be used in a continuous, ongoing manner to ensure that children, particularly those who are identified as being at risk for reading failure, are making sufficient progress over the course of the school year.
- **Classroom-Based Instructional Reading Assessment (or Informal Assessments).** "The term 'classroom-based instructional reading assessment' means an assessment that (I) evaluates children's learning based on systematic observations by teachers of children performing academic tasks that are part of their daily classroom experience; and (ii) is used to improve instruction in reading including classroom instruction" (No Child Left Behind, p. 206).

Specific tools for each purpose are cited within the context of each SBRR component; however, given the complexity of New Hampshire's Reading First assessment plan, the reader is referred to the Overview of Assessments chart, which summarizes the entire battery of assessments required for all five SBRR components (see Broad Implications of SBRR section). The NRP's report provides important insights about how best to assess each SBRR component, which, in turn, supported New Hampshire's efforts in selecting its complete battery of assessment tools; these insights are included in the following review.

The *instructional* implications of each component identify specific practices that are supported by research, as determined by the NRP's review of the research. In other words, each SBRR component identifies research-based instructional strategies that have been demonstrated, through experimental research, to foster growth for each of the SBRR components and for other outcomes (e.g., reading achievement in general, spelling).

Given the instructional implications, each component has practical implications for what *programs and materials* should be used in the classroom. These implications are reviewed briefly to identify those materials that lend themselves best to fostering the development of each component. Critical to the success of the Reading First initiative is the expectation that Reading First schools will adopt a comprehensive reading program that serves the purpose of providing a fundamental backbone for making decisions about what and how to teach reading on a daily basis. However, these programs can and may need to be supplemented with other materials to ensure that the research-based instructional practices associated with each component can be fully and effectively implemented.

Each SBRR component also has specific implications for *special populations* of children. This category identifies which research-based instructional strategies have been shown to be effective with different groups of children (i.e., groups such as grade level, ability level, socioeconomic status, and primary language). The implications of this research base for special populations of children are reviewed to alert the reader to circumstances where research-based strategies may prove more or less effective with special populations of children.

Finally, each component has practical implications for *professional development*. In most cases, relatively little is known about training teachers to effectively implement the research-based instructional strategies that support each of the five SBRR components. What little is known is highlighted, as identified by the NRP report, and often emphasizes issues of concern such as developing a teacher's knowledge base, providing effective training, and considering issues of motivation. This information is addressed under each SBRR component and is also incorporated into the state's professional development plan.

The sections that follow provide a detailed review of the scientifically based reading research for each of the five components emphasized in the Reading First initiative (i.e., phonemic awareness, phonics, fluency, vocabulary, and comprehension). This review addresses each of the categories described above for each component: a definition, the rationale for its inclusion, and the implications the component has for practice (i.e., curriculum, assessment, instruction, materials, special populations, and professional development). Although the following section is lengthy and detailed, the R.E.A.D. team members believe this information will provide an important foundation for fostering a deep understanding of SBRR at the state and local level.

Phonemic Awareness

Defined

According to the National Reading Panel (NRP) report, phonemic awareness "refers to the ability to focus on and manipulate phonemes in spoken words" (NRP, 2-1).[3] Phonemes represent the smallest unit of spoken language and can be combined to form syllables and words (NRP, 2-2). For example, three phonemes are in the word *dog*: /d/, /o/, and /g/.

Phonemic awareness is distinguished from phonics, which "entails teaching students how to use grapheme-phoneme correspondences to decode or spell words" (NRP, 2-2). Graphemes are the smallest unit of written language and can consist of one letter (e.g., *k*) or multiple letters (e.g., *ck*), each of which represent phonemes (NRP, 2-2). Phonics tasks inevitably include phonemic awareness tasks because the relationship between graphemes and phonemes are considered in the process of reading words.[4]

Phonemic awareness is also distinguished from phonological awareness, which is "a more encompassing term referring to various types of awareness," including awareness of individual phonemes and larger spoken units such as rhyming words, words in a sentence, syllables, and the onset and rimes in words (NRP, 2-10). Although a number of phonemic awareness programs begin with larger, albeit often simpler, units of spoken language, the National Reading Panel's meta-analysis focused on studies that emphasized the importance of the ability to manipulate sounds at the phonemic level (NRP, 2-10).

Various tasks are associated with phonemic awareness (or the ability to manipulate sounds at the phonemic level), including the following: (a) phoneme isolation (e.g., identify the first sound in *paste*); (b) phoneme identity (e.g., identify the same sound in *bike*, *boy*, and *bell*); (c) phoneme categorization (e.g., identify the odd word in *bus*, *bun*, *rug*); (d) phoneme blending (e.g., combine /s/ /k/ /u/ /l/ to form a word); (e) phoneme segmentation (e.g., identify the number of phonemes in *ship*); (f) phoneme deletion (e.g., identify *smile* without the /s/); (g) phoneme addition (e.g., identify *park* with an added /s/); and (h) phoneme substitution (e.g., change the /b/ to /h/ in the word *bug*) (NRP, 2-2; PRF, 5). These tasks emphasize the identification and manipulation of phonemes in spoken words.

Rationale

Several reasons explain why phonemic awareness and, hence, the ability to manipulate spoken language units at the phonemic level, was identified by the NRP as one of five SBRR components.

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[3] To facilitate the reading of this detailed review of SBRR, the National Reading Panel (NRP) report and the Put Reading First (PRF) document are referenced using the acronym representing the essential words in the document (i.e., NRP and PRF).

[4] The National Reading Panel considered studies that incorporate the use of letters with phonemic tasks, but they did not look at tasks involving reading and writing.

First and foremost is the theoretical premise pointing to the importance of phonemic awareness. Learning to read and spell words in the English language requires an understanding of the alphabetic principle (i.e., the ability to understand the concept of grapheme-phoneme correspondence). To fully appreciate this principle, a child must learn that our English language is made up of larger and smaller units of spoken language. Learning to distinguish especially the smaller units or phonemes is particularly difficult because there are "no breaks in speech signaling where one ends and one begins," and many of these phonemes are folded into one another and "coarticulated" (NRP, 2-2).

Ultimately, however, to read and spell words, a child must be able to apply phonemic awareness tasks such as blending and segmenting—tasks believed to be the most directly involved in the reading and spelling process—to a corresponding grapheme or graphemes. For example, to decode unfamiliar words, a child must be able to use the phonemic awareness task of blending. Similarly, to spell unfamiliar words and retain words in memory, a child must be able to use the phonemic awareness task of segmenting phonemes. Therefore, to fully understand the alphabetic principle, a child needs to understand how to apply phonemic awareness tasks—such as blending and segmenting—to the reading and spelling of words. In this frame of reference, phonemic awareness is "a means rather than an end" (NRP, 2-33).

Second, we know from research that phonemic awareness plays a critical role in children's development as readers and spellers. For instance, we know from correlational studies that phonemic awareness and letter knowledge are "the two best predictors of how well children will learn to read during their first two years of school" (NRP, 2-1; see also Adams; Share et al).[5] We also know from the National Reading Panel's meta-analysis, which examined a number of experimental studies, that a causal relationship exists between phonemic awareness training as well as knowledge and the transfer of this knowledge to reading and spelling tasks. That is, children can be taught phonemic awareness tasks, and these tasks positively influence their ability to read and spell words.

Finally, and not surprisingly, given the theoretical and research base pointing to the importance of phonemic awareness, there is "currently much interest in phonemic awareness training programs among teachers, principals, and publishers" (NRP, 2-2). This trend is certainly true in New Hampshire where teachers have "flocked" to phonemic awareness workshops offered around the state. Moreover, evidence suggests that teachers need more "sufficient phonemic awareness to teach this skill adequately on their own" (NRP, 2-44; see also Moats, 1994; Scarborough et al., 1998). Informal observations in New Hampshire indicate that confusion about the concepts of phonemic awareness, phonological awareness, and phonics is evident; moreover, the NRP's research base, which focuses on the phonemic level rather than on larger spoken language units, needs to be clearly articulated.

[5] References that follow the NRP reference (e.g., "see also …") were obtained from the NRP report and were included in this review to ensure that proper credit was given to the appropriate author or authors; these references are not included in the list of references at the end of this document, and readers are asked to consult the NRP report for more information.

We know then from theory, research, and practice that phonemic awareness not only is important but also is perceived as knowledge that is needed to effectively reach children who are learning to read and write.

Implications for Practice

Phonemic awareness, given its scope and importance, has implications for practice, specifically in terms of curriculum, assessment, instruction, programs and materials, special populations, and professional development. Each of these areas will be addressed in light of what we know about phonemic awareness.

Curriculum. As indicated above, certain tasks are associated with phonemic awareness, and these tasks need to be reflected in local and state curricular documents as well as in the scope and sequence of a comprehensive reading program. Teachers need to know what children are expected to know and what children must be able to do to acquire phonemic awareness knowledge. To make phonemic awareness tasks appropriate for the literacy development of kindergarten and first-grade children or of less able, older readers, curricular documents need to address both larger spoken units (i.e., phonological awareness tasks not at the phonemic level; see below) and less complex phonemic tasks (e.g., phoneme categorization). The section that follows will list the curricular implications for phonics as suggested by the NRP report and the *Put Reading First* document.

Specifically, curricular documents need to include the following objectives for phonological awareness, including specific attention to phonemic awareness:[6]

- Rhyme: Matching the ending sounds of words (e.g., cat, hat, bat, sat)
- Alliteration: Producing groups of words that begin with the same initial sound (ten tiny tadpoles)
- Sentence segmentation: Segmenting sentences into spoken words (e.g., The (1) dog (2) ran (3) away (4).)
- Syllables: Blending syllables to say words or segmenting words into syllables (e.g., /mag/ /net/)
- Onset and rimes: Blending or segmenting the initial consonant or consonant cluster (onset) and the vowel and the consonant sounds that are spoken after it (rime) (e.g., /m/ /ice/)
- Phonemes: Blending phonemes into words, segmenting words into individual phonemes, and manipulating phonemes in spoken words (see below)

Specific phoneme tasks include

- Phoneme isolation (e.g., identify the first sound in *paste*)
- Phoneme identity (e.g., identify the same sound in *bike*, *boy*, and *bell*)
- Phoneme categorization (e.g., identify the odd word in *bus*, *bun*, *rug*)

[6] Adapted from University of Texas Center for Reading and Language Arts (2002) Kindergarten Teacher Reading Academy Participant Guide, Part I; see also NRP and PRF.

- Phoneme blending (e.g., combine /s/ /k/ /u/ /l/ to form a word)
- Phoneme segmentation (e.g., identify the number of phonemes in *ship*)
- Phoneme deletion (e.g., identify *smile* without the /s/)
- Phoneme addition (e.g., identify *park* with an added /s/)
- Phoneme substitution (e.g., change the /g/ to /h/ in the word *bug*)

Given what we know about phonemic awareness, we clearly can recognize that implications for curriculum must be considered when reviewing state, local, and program documents.

Assessment. The NRP's review of scientific studies revealed that a variety of tasks were measured to determine children's knowledge and growth in knowledge of phonemic awareness. A range of tasks, as indicated above, were commonly used to assess phonemic awareness (e.g., phonemic isolation, phoneme identity, phoneme categorization, phoneme blending, phoneme segmentation, and phoneme deletion) (NRP, 2-2). In addition, assessment tasks were used to determine whether phonemic awareness knowledge contributes to children's ability to read and spell (NRP, 2-28).

According to the Reading First legislation and the *Secretary's Reading Leadership Academy* (U.S. DOE, 2002), a battery of assessment tools must include a combination of screening tools, diagnostic evaluation tools, progress monitoring tools, and outcome tools, and that battery of tools must meet the criteria for being "valid, reliable, and based on scientifically based reading research" (No Child Left Behind, p. 206). In addition, teachers will need to use informal tools, as informed by curricular documents and a comprehensive reading program consistent with SBRR, to inform classroom instruction. For the purposes of evaluating phonemic awareness, all of these types of tools are recommended primarily for assessing kindergarten and first grade children and may be used (with caution) to assess older, less able readers (see NRP, 2-29). Given the complexity of New Hampshire's Reading First assessment plan, the reader is referred to the Overview of Assessments chart, which summarizes the assessments required for all five SBRR components (see Broad Implications of SBRR section).

First, a brief screening tool, used at the beginning of the year, is needed to identify children at risk for reading failure; included in this screening is a test to identify children's knowledge of phonemic awareness. The goal is not to exhaustively assess the various curricular implications of phonemic awareness knowledge but to selectively assess the most critical areas that predict success in reading (i.e., the ability to blend and segment phonemes). For this purpose, New Hampshire has chosen to use the Phonological Awareness Literacy Screening (PALS) or the Dynamic Indicators of Basic Early Literacy Skills, 6th Edition (DIBELS), both of which include a phonemic awareness test. Examination of the technical information from the University of Virginia (see Appendix F) and the University of Oregon (see Appendix G) confirms that these phonemic awareness tests, as screening tools for kindergarten and Grade 1, meet the Reading First criteria for being both valid and reliable.

Second, for those children who are identified as having potential difficulty with phonemic awareness, a diagnostic tool is used to identify specific phonemic awareness tasks to address for instruction. For this purpose, New Hampshire has selected the Phonological Awareness

Test (PAT). This test provides more detailed information about children's ability to engage in phonemic awareness tasks, which can be used to guide classroom instruction and varying levels of intervention. Examination of the technical information from the University of Oregon confirms that this phonemic awareness test, as a diagnostic tool for kindergarten and Grade 1, meets the Reading First criteria for being both reliable and valid (see Appendix G).

Third, throughout the school year, children's progress in phonemic awareness needs to be monitored. For this purpose, progress monitoring tools are used to ensure that all children are making gains. New Hampshire has selected the Dynamic Indicators of Basic Early Literacy Skills, 6th Edition (DIBELS), and specifically the Initial Sound Fluency and the Phoneme Segmentation Fluency sub-tests, to monitor progress in phonemic awareness. The progress monitoring tool will be used in a continuous, ongoing manner over the course of the year, particularly for children who have been identified as being at risk for reading failure. Schools will be expected to summarize the results of their findings and specify instructional implications in a report to local constituents and the NH DOE. If children do not appear to be making progress, the diagnostic tool will be administered to target specific areas of concern for instruction. Although progress monitoring tools are not required by law to meet the standards of reliability and validity, it was approved by the University of Oregon as meeting these criteria (Appendix G).

Fourth, for the purpose of program evaluation, an outcome measure needs to be used to ensure pre- and post-test progress in phonemic awareness. New Hampshire has selected the Phonological Awareness Literacy Screening (PALS) tool or the Dynamic Indicators of Basic Early Literacy Skills, 6th Edition (DIBELS), to be used at the beginning and end of the school year. These tools were identified by the University of Virginia and the University of Oregon as meeting the Reading First criteria of reliability and validity (see Appendix F and G).

Finally, teachers will be expected to use informal tools or "classroom-based instructional reading assessments" (No Child Left Behind, p. 206) that are consistent with the curricular implications of phonemic awareness (see curriculum section above) to inform day-to-day instructional decisions. Specifically, these assessments (a) evaluate children's learning "based on systematic observations by teachers of children performing academic tasks that are part of their daily classroom experience" and (b) are used "to improve instruction in reading, including classroom instruction" (No Child Left Behind, p. 206).

To assess phonemic awareness, therefore, educators need to use a battery of assessment tools over the course of the school year that are reliable, valid, and scientifically based. In addition, they need to use informal tools to inform classroom instruction. New Hampshire has selected a battery of tools that meet these criteria and that enable educators to identify children early, diagnose specific problem areas, monitor progress, and measure outcomes.

Instruction. One purpose of the NRP's report was to summarize the scientific evidence supporting the effectiveness of phonemic awareness instruction. The NRP report indicates that phonemic awareness instruction was more effective (than no phonemic awareness instruction) in helping children acquire phonemic awareness (i.e., the ability to attend to and manipulate speech sounds in words) and that phonemic awareness instruction contributes to

children's ability to read and spell (NRP, 2-28). Moreover, the NRP report revealed a range of conditions under which phonemic awareness training took place (NRP, 2-28). Although all instructional conditions described in the report are effective, some conditions produced larger effects than others on learning phonemic awareness (NRP, 2-4).

A closer examination of these variables prompted several recommendations for structuring phonemic awareness instruction in the classroom. However, the panel cautions the prescriptive use of these recommendations because the analysis is essentially correlational in nature and further research would be required to demonstrate a causal relationship among these variables and their effectiveness in instruction (NRP, 2-19–20). Their analysis suggests the following:

- "Phonemic awareness instruction is most effective when children are taught to manipulate phonemes using the letters of the alphabet" (PRF, 7; see also NRP, 2-21–22).
- "Phonemic awareness instruction is most effective when it focuses on only one or two types of phoneme manipulation, rather than several types" (PRF, 7; see also NRP, 2-20–21).
- Phonemic awareness instruction is most effective when teachers are "explicit about the connection between phonemic awareness and reading" (PRF, 8; NRP, 2-33).
- Phonemic awareness instruction "should take no more than 20 hours" over the course of the school year and may vary substantially (from 5 to 18 hours) depending on the needs of children as determined by assessment data (PRF, 9; NRP, 2-22).
- Phonemic awareness instruction is more effective in small groups than in one-on-one situations or with the entire classroom (PRF, 9; NRP, 2-22).
- Phonemic awareness instruction can be taught effectively by classroom teachers and through computers (NRP, 2-23).

In addition, the NRP identifies several important issues and cautions not addressed (but implied) by the research:

- Phonemic awareness is "a means rather than an end" and is "not acquired for its own sake, but rather for its value in helping learners understand and use the alphabetic system to read and write" (NRP, 2-33).
- Children will differ in phonemic awareness and some will need more instruction than others, especially nonreaders (often characteristic of most kindergartners), who need easier phonemic awareness tasks (e.g., identify and categorize phonemes), and others who need more difficult tasks (e.g., segmenting, blending, deletion/addition, and substitution) (NRP, 2-33).
- "In the rush to teach phonemic awareness, it is important not to overlook the need to teach letters as well.… Using letters to manipulate phonemes helps children make the transfer to reading and writing" (NRP, 2-33).
- Phonemic awareness instruction does not constitute a complete reading program but provides a critical foundational piece to help children grasp how the

alphabetic system works; literacy acquisition is a complex process, and there is no single key to success (NRP, 2-43).

- Various phonemic awareness programs have been found to be effective; research has yet to identify which factors, principles, and conditions are relevant to its success (NRP, 2-43).
- The motivation of students and teachers is a key factor not addressed by the research; phonemic awareness should be relevant and exciting to engage children's interest and attention to promote optimal learning; techniques need to be engaging also for teachers and are most effective when teachers are enthusiastic in their teaching (NRP, 2-43).
- "Children will acquire some phonemic awareness in the course of learning to read and spell even though they are not taught phonemic awareness explicitly.… However, incidental instruction that does not focus on teaching phonemic awareness falls short in its contribution to children's reading and spelling development" (NRP, 2-43).
- The NRP's meta-analysis should not be overinterpreted; we cannot infer that every teacher in the studies was successful and cannot use the results to dictate oversimplified prescriptions for effective instruction (NRP).
- More phonemic awareness instruction is not necessarily better; the effect size was largest when training lasted fewer than 20 hours; children will differ in the amount of time they need to acquire phonemic awareness (NRP).
- Early phonemic awareness instruction cannot guarantee later literacy success; adding to a program is likely to yield significant dividends but depends on the comprehensiveness and effectiveness of the entire literacy program (NRP).

Clearly, the NRP report indicates that instruction in phonemic awareness is effective in fostering phonemic awareness knowledge. However, the report provides specific guidelines and words of caution when structuring phonemic awareness instruction.

Programs and materials. To teach phonemic awareness effectively, teachers need access to appropriate instructional programs and materials. Specifically, teachers need (a) a comprehensive reading program that prespecifies, in a logical and systematic manner, the phonemic awareness knowledge to be taught directly and that demonstrates explicitly how to apply this knowledge to reading and spelling; (b) supplemental and intervention programs, as well as materials such as quality read alouds materials, big books, predictable books and charts, and leveled books that draw attention to the targeted phonemes or phoneme tasks; and (c) activity sheets as well as spelling and writing opportunities (e.g., sentences, messages, and stories) that challenge children to apply phonemic awareness knowledge to letter-sound correspondences.

Special populations. Among the variables cited in the meta-analysis, the NRP report also identified the implications that phonemic awareness instruction has for special populations. They include the following:

- Phonemic awareness instruction is most effective for beginning readers who are at risk for reading failure and for normally progressing readers rather than for older disabled readers (NRP, 2-23).
- Phonemic awareness instruction is most effective for preschool and kindergarten students rather than for students in first grade and above (NRP, 2-24).
- Phonemic awareness is most effective for students learning to read English rather than for those learning other languages (NRP, 2-24).
- Phonemic awareness is equally beneficial to all children regardless of SES level (NRP, 2-24).
- The effectiveness of the above conditions for special populations vary in terms of how well they contribute to children's abilities to learn to read and spell (e.g., phonemic awareness instruction does not appear to contribute to older, learning disabled students' abilities to spell) (NRP, 2-23–24).

Professional development. As noted by the NRP report, "classroom teachers are the primary purveyors of reading instruction so, it is important to verify that they can teach phonemic awareness effectively" (NRP, 2-22). The NRP report alerts readers that teacher training is critical to effective phonemic awareness instruction:

> Findings of a few studies have raised doubt that teachers possess sufficient phonemic awareness to teach this skill adequately on their own (Moats, 1994; Scarborough, Ehri, Olson, & Fowler, 1998). These studies indicate that teachers fall short in manipulating phonemes correctly. However, the studies do not show that this lack of knowledge limits teachers' ability to *learn* to teach phonemic awareness adequately. (NRP, 2-44, emphasis added)

In fact, the NRP report goes on to note that "results of the Panel's analysis indicate that with training, teachers can teach phonemic awareness effectively" (NRP, 2-44). Specifically, results of the NRP's meta-analysis—for phonemic awareness outcomes—indicate that "the effect size produced by classroom teachers was large ($d = 0.78$) although not as large statistically as that produced by others, consisting mainly of researchers ($d = 0.94$) who were primarily responsible for developing the training procedures in the studies" (NRP). Moreover, the meta-analysis revealed that "phonemic awareness training delivered by teachers transferred to reading and spelling" (NRP, 2-23). This evidence suggests that teachers, with training, are capable of delivering effective phonemic awareness instruction.

The NRP report indicates that research needs to "clarify what sort of knowledge and training maximizes teachers' effectiveness in teaching phonemic awareness and in integrating this instruction with beginning reading instruction" for both preservice and in-service teachers and across different levels (i.e., preschool, primary, and older disabled readers) (NRP, 2-44). Specifically, research needs to determine whether the following topics are relevant to teacher training:

- How much and what sort of linguistic knowledge about phonemes, graphemes, and the alphabetic system need to be taught to teachers?

- How much knowledge about literacy learning processes and their course of development in beginning readers needs to be understood by teachers?
- Do teachers need to know the following?
- How phonemic awareness develops in children
- Which tasks are easier and which are harder
- What techniques help children focus on phoneme-size units
- What kinds of mistakes children commonly make, their origins, and how to correct them
- The process children use to invent spellings and develop in their ability to use more complete and conventional spellings

Although research has not identified specific content knowledge that is critical to the training of teachers, these topics serve as important guidelines in considering the development of a professional development program for teachers in phonemic awareness.

Summary of Phonemic Awareness

Phonemic awareness, the ability to identify and manipulate phonemes in spoken words, was selected by the NRP as one of five SBRR components for its sound theoretical and research base as well as its popularity. This component has specific implications for practice—especially related to curriculum, assessment, instruction, programs and materials, special populations, and professional development. Information that was obtained largely from the NRP report and that has been outlined above provides the essential foundation for the decisions the state has made for its Reading First plan, and it will provide the necessary guidance to Reading First eligible schools in developing their local plans.

Phonics

Defined

Phonics refers to the ability to "[learn] the alphabetic system, that is, letter-sound correspondences and spelling patterns, and [to learn] how to apply this knowledge" in reading and spelling (NRP, 2-89; see also Harris & Hodges, 1995).[7]

As noted in the previous section, phonics is distinguished from phonemic awareness, which "refers to the ability to focus on and manipulate phonemes in spoken words" (NRP, 2-1). Phonics, in contrast, involves "knowing how letters [or graphemes] correspond to phonemes and larger subunits of words … [to] sound out word segments and blend these parts to form recognizable words" (NRP, 2-90). Therefore, as explained by the NRP, "To be able to make use of letter-sound information, children need phonemic awareness. That is, they need to be able to blend sounds together to decode words, and they need to break spoken words into their constituent sounds to write words" (NRP, 2-96).

To acquire phonics knowledge, readers need to learn "a full array of letter-sound correspondences" for consonants, vowels, and digraphs (e.g., *oi*, *ea*, *ou*, *sh*, *ch*, *th*). In addition, readers need to learn larger subunits of words such as blends (e.g., *st*, *sm*, *bl*, *pr*) and final stems, or rimes (e.g., *-ack*, *-end*, *-ill*, *-op*). Finally, readers need to know how to apply phonics knowledge to reading and writing (NRP, 2-99). In the context of reading, phonics, or alphabetic knowledge, is needed to "figure out new words by analogy … to help beginners remember words they have read before" (i.e., by developing a sight vocabulary)[8] and "to be more accurate in predicting words from context" (NRP, 2-90). Phonics, therefore, is fundamental to the ability to read words in isolation or to read connected text, and it substantially supports and confirms the reading of words through the use of analogy, sight vocabulary, and predicting (NRP, 2-107; see also Ehri 1991, 1994).

In summary, phonics refers to the ability (a) to know specific letter-sound correspondences and larger subunits of words and (b) to apply the alphabetic principles to read and spell words in context.

Rationale

Several reasons explain why phonics and, hence, the ability to understand and apply the alphabetic principle was identified by the NRP as one of five SBRR components.

First, as with phonemic awareness, a theoretical premise points to the importance of phonics. Reading is a complex process that requires the ability to "coordinate many cognitive

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[7] Different labels are used to describe letter-sound correspondences, including graphophonemic relationships, letter-sound associations, sound-symbol correspondences, and sound-spellings (PRF, 12).

[8] According to the *Put Reading First* document, "phonics instruction teaches children a system for remembering how to read words" and "the alphabetic system is a mnemonic device that supports our memory for specific words" (PRF, 12).

processes," (NRP, 2-89) and "a central part of text processing involves reading the words" (NRP, 2-107; see also Ehri, 1991, 1994). The NRP report explains:

> Text reading is easiest when readers have learned to read most of the words in the text automatically by sight because little attention or effort is required to process the words. When written words are unfamiliar, readers may decode them or read them by analogy or predict the words, but these steps take added time and shift attention at least momentarily from the meaning of the text to figuring out the words. (NRP, 2-107)

Moreover, to build a sight vocabulary, which contributes to more efficient reading, readers must

> apply decoding or analogizing strategies to read unfamiliar words. These ways of reading words help the words to become familiar. Processing letter-sound relations in the words through decoding or analogizing creates alphabetic connections that establish the words in memory as sight words (Ehri, 1992; Share, 1995). (NRP, 2-107)

Therefore, the ability to decode and apply analogizing strategies to unfamiliar words is critical for developing a sight vocabulary and for processing text accurately, fluently, and efficiently. Phonics knowledge and, hence,

> [s]ystematic phonics instruction is thought to contribute to the process of learning to read words in these various ways by teaching readers use of the alphabetic system. Alphabetic knowledge is needed to decode words, to retain sight words in memory, and to call on sight word memory to read words by analogy. In addition, the process of predicting words from context benefits from alphabetic knowledge. Word prediction is made more accurate when readers can combine context cues with letter-sound cues in guessing unfamiliar words in text (Tunmer & Chapman, 1998). (NRP, 2-107)

In other words, phonics knowledge is fundamental to the ability to read and spell words. Other word-reading strategies such as using analogy, sight words, or predicting skills depend on and must work in tandem with alphabetic or phonic knowledge to process text accurately, fluently, and efficiently. Therefore, phonics is identified as a priority and, hence, as one of five SBRR components because it plays a critical role in the processing of text.

Second, although the issue of whether to emphasize systematic instruction "has remained controversial" (NRP, 2-101), research repeatedly has pointed to the positive effect that phonics instruction has on children's ability to read and spell words (NRP, 2000; see also Adams, 1990; Anderson et al., 1985; Balmuth, 1982; Chall, 1967, 1983; Dykstra, 1968). Confirming the reviews of research conducted from the 1960s to the present, the NRP reached the following conclusion:

> The mean overall effect size produced by phonics instruction was moderate in size and statistically greater than zero (0.44). Findings provided solid support for the conclusion that systematic phonics instruction makes a bigger contribution to children's growth in reading than alternative programs providing unsystematic or no phonics instruction. (NRP, 2-92)

Therefore, phonics was identified by the NRP as a critical SBRR component because of the effect—as determined by scientific evidence—that phonics instruction has on children's ability to read and spell words.

Finally, advocates from varying perspectives have long acknowledged the importance of phonics instruction. For example, recent surveys indicate that teachers believe teaching phonics is important (NRP, 2-102; see also Baumann et al., 1998; Fisher et al., 1999) and have done so for many years despite the waves of controversy. Numerous recent articles and books about the importance of teaching phonics note the widely acknowledged sentiment that "Good teachers have not stopped teaching phonics." Moreover, not only best-selling titles such as Flesch's (1955) *Why Johnny Can't Read* but also the more recent wave of news media articles indicate, as the NRP report suggests, that "concern about beginning reading instruction [has not been] confined just to the educational community but [has been] very much in public discourse" (NRP, 2-101), particularly public discourse concerning the lack of attention to explicit phonics instruction.[9]

In summary, then, the NRP identified phonics as a critical SBRR component because of its strong theoretical premise, its longstanding research base, and its support from practitioners and the general public.

Implications for Practice

Phonics, given its scope and importance, has implications for practice, specifically in terms of curriculum, assessment, instruction, programs and materials, special populations, and professional development. Each of these areas will be addressed in light of what we know about phonics.

Curriculum. To help children use phonics (albeit alphabetic) knowledge, teachers need to know what children are expected to know and what children are expected to be able to do at different stages of literacy development. These tasks need to be reflected in local and state curricular documents as well as within the scope and sequence of a comprehensive reading program. The following discussion presents the curricular implications for phonics as suggested by the NRP report and the *Put Reading First* document.

[9] However, even with its popular acceptance as a critical component in reading instruction, the "reading wars" continue, fueled by debates about how phonics should be taught even though research has repeatedly pointed to the need for direct, systematic instruction and the application of this knowledge to real reading and writing rather than incidental instruction in the context of reading and writing (see Instruction section).

According to the NRP, "The goal in all phonics programs is to enable learners to acquire sufficient knowledge and use of the alphabetic code so that they can make normal progress in learning to read and comprehend written language" (NRP, 2-89). To achieve this goal, systematic phonics programs "delineate a planned, sequential set of phonic elements [i.e., letter-sound correspondences and larger subunits of words] and they teach these elements explicitly and systematically" (NRP, 2-89).

However, the content of various phonics programs (i.e., what children are taught) varies considerably (NRP, 2-103; see also Adams, 1990; Aukerman, 1981). According to the NRP report, most studies examined in the meta-analysis did not adequately describe the phonics programs under investigation; therefore, the NRP was not able to draw any conclusions about whether certain curricular items were more effective or efficient than others in contributing to children's ability to read and spell words (NRP, 2-104).

Despite this variability, the NRP identifies several content features characteristic of phonics programs that have implications for curriculum (NRP, 2-99). These include the following:

- Consonant letters and sounds
- Short letters and sounds
- Long letters and sounds
- Vowel digraphs (e.g., *oi*, *ea*, *ou*)
- Consonant digraphs (e.g., *sh*, *ch*, *th*)
- Blends (e.g., *st*, *sm*, *bl*, *pr*)
- Final stems (e.g., *-ack*, *-end*, *-ill*, *-op*)

Phonics programs may vary in the treatment or inclusion of these key features (e.g., the number of letter-sound relations, the sequencing of these relations, the inclusion of phonics generalizations, the use of special marks to identify features of sounds, the size of unit emphasized) (NRP, 2-99).

Moreover, the NRP emphasizes that "it is not sufficient just to teach the alphabetic system. Children need practice in applying this knowledge in reading and writing activities" (NRP, 2-99). Specifically, children need phonics knowledge to read and write words (NRP, 2-90, 96; see also Ehri, 1991, 1994). Therefore, a critical curricular component for phonics is a means to ensure that specific attention is paid to teaching children how to apply phonics knowledge to reading and writing.

In summary, according to the NRP, the curricular implications for phonics indicate that children need "a planned, sequential set of phonic elements," which include specific letter-sound correspondences and larger subunits of words. In addition, children need to know specific ways for how to apply this phonics knowledge to reading and writing.

Assessment. Many of the assessments used in the studies that are included in the NRP's meta-analysis typically required children to apply their knowledge of phonics in a variety of conditions (e.g., decoding real words with regular spelling-to-sound patterns; reading nonsense words; identifying words with irregular patterns; and performing tasks involving

spelling, comprehension, and oral reading). These various conditions reflect the curricular implications (outlined above) that emphasize the importance of assessing not only children's knowledge but also their growth in knowledge of both specific phonics elements and the application of these elements to reading and writing.

According to the Reading First legislation and the *Secretary's Reading Leadership Academy* (U.S. DOE, 2002), a battery of assessment tools must include a combination of screening tools, diagnostic evaluation tools, progress monitoring tools, and outcome tools, and that battery must meet the criteria for being "valid, reliable, and based on scientifically based reading research" (No Child Left Behind, p. 206). In addition, teachers will need to use informal tools, as informed by curricular documents and a comprehensive reading program consistent with SBRR, to inform classroom instruction. All of these assessment tools are recommended for children in grades kindergarten through 2 for the purpose of measuring phonics knowledge. Given the complexity of New Hampshire's Reading First assessment plan, the reader is referred to the Overview of Assessments chart, which summarizes the assessments required for all five SBRR components (see Broad Implications of SBRR section).

First, a brief screening tool, used at the beginning of the year, is needed to identify children at risk for reading failure; included in this screening is a test of children's knowledge of phonics and their ability to apply phonics knowledge to reading and spelling. The goal is not to exhaustively assess the various curricular implications of phonics knowledge but to selectively assess the most critical areas that predict success in reading (i.e., the ability to use letter-sound correspondences). For this purpose, New Hampshire has chosen to use the Phonological Awareness Literacy Screening (PALS) or the Dynamic Indicators of Basic Early Literacy Skills, 6th Edition (DIBELS), both of which include a phonics test. Examination of the technical information from the University of Virginia (see Appendix F) and from the University of Oregon (see Appendix G) confirms that these phonics tests, as screening tools for kindergarten through Grade 2, meet the Reading First criteria for being reliable, valid, and scientifically based.

Second, for those children who are identified as being at risk for not learning to read or who appear to be having difficulty with phonics (as determined by the screening tool), a diagnostic tool is used to identify specific phonics areas to address for instruction. For this purpose, New Hampshire has selected the Phonological Awareness Test (PAT). This test provides more detailed information about children's knowledge of phonics, which can be used to guide classroom instruction and varying levels of intervention. Examination of the technical information from the University of Oregon confirms that this phonics test, as a diagnostic tool for grades kindergarten through 2, meets the Reading First criteria for being reliable, valid, and scientifically based (see Appendix G).

Third, throughout the school year, children's progress in phonics needs to be monitored. For this purpose, progress monitoring tools are used to ensure that all children are making gains. New Hampshire has selected the Dynamic Indicators of Basic Early Literacy Skills, 6th Edition (DIBELS), and specifically the Letter Naming Fluency and Nonsense Word Fluency subtests, to monitor progress in phonics. The progress monitoring tool will be used in a

continuous, ongoing manner over the course of the year, particularly for children who have been identified as being at risk for reading failure. Schools will be expected to summarize the results of their findings and specify instructional implications in a report to local constituents and to the NH DOE. If children do not appear to be making progress, the diagnostic tool will be administered to target specific areas of concern for instruction. Although the progress monitoring tool is not required by law to meet the standards of reliability, validity, and scientifically based, the DIBELS test was approved by the University of Oregon as meeting these criteria (see Appendix G).

Fourth, for the purpose of evaluating the program and examining overall student achievement, an outcome measure needs to be used to ensure pre- and post-test progress in phonics. New Hampshire has selected the Stanford Achievement Test, 10th Edition (SAT-10) to be used at the beginning and end of the school year. The SAT-10 was identified by the University of Oregon as meeting the Reading First criteria of reliability, validity, and scientifically based (see Appendix G).

Finally, teachers will be expected to use informal tools or "classroom-based instructional reading assessments" (No Child Left Behind, p. 206) that are consistent with the curricular implications of phonics (see curriculum section above) and with a comprehensive reading program to inform day-to-day instructional decisions. Specifically, these assessments "(1) [evaluate] children's learning based on systematic observations by teachers of children performing academic tasks that are part of their daily classroom experience; and (2) [are] used to improve instruction in reading, including classroom instruction" (No Child Left Behind, p. 206). The assumption is that a comprehensive reading program will guide teachers in their use of these informal tools.

To assess phonics, therefore, educators need to use a battery of assessment tools over the course of the school year that are reliable, valid, and scientifically based. In addition, educators need to use informal tools to inform classroom instruction. New Hampshire has selected a battery of tools that meet these criteria and enable educators to identify children early, diagnose specific problem areas, monitor progress, and measure outcomes.

Instruction. The primary purpose of the NRP's meta-analysis was to "examine research evidence concerning systematic phonics instruction" to determine whether this approach was more effective than nonsystematic programs or programs with no phonics instruction in teaching children the alphabetic principle and applying this knowledge to reading and writing. The purposes of the sections that follow are to (a) highlight the differences between systematic and nonsystematic phonics instruction; (b) summarize the research base supporting systematic phonics instruction, which includes an analysis of the varying conditions for teaching phonics and the words of caution offered by the NRP for using the scientific research base; and (c) provide general guidelines for evaluating systematic phonics instruction programs. This information is intended to assist those who will be involved in New Hampshire's Reading First initiative as they evaluate, select, and implement phonics programs that are based on scientific reading research.

Differences between systematic and nonsystematic phonics instruction. The following section outlines the key differences between systematic and nonsystematic phonics instruction, as reported by the NRP report. This information is provided in this document to clarify any confusion that may exist with respect to the importance of systematic phonics instruction and what it involves.

Systematic instruction. According to the NRP report, "systematic phonics instruction typically involves teaching students a prespecified set of letter-sound relations and having students read text that provides practice using these relations to decode words" (NRP, 2-92).[10] However, different instructional approaches are used for teaching these letter-sound relations, and different types of practice opportunities are provided for applying this knowledge in reading and writing.

The NRP describes five different instructional approaches that might be used in combination with one another for teaching the letter-sound relations. These include the following (emphasis added):

- "*Synthetic phonics* teach children to convert letters into sounds or phonemes and then blend the sounds to form recognizable words" (NRP, 2-89).
- "*Analytic phonics* avoids having children pronounce sounds in isolation to figure out words; rather children are taught to analyze letter sound relations once the word is identified" (NRP, 2-89).
- "*Phonics-through-spelling* programs teach children to transform sounds into letters to write words" (NRP, 2-89).
- "*Phonics in context* approaches teach children to use sound-letter correspondences along with context cues to identify unfamiliar words they encounter in text" (NRP, 2-89).
- "*Analogy phonics* programs teach children to use parts of written words they already know to identify new words" (NRP, 2-89).
- *Onset-rime phonics instruction* teaches children "to identify the sound of the letter or letters before the first vowel (the onset) in a one-syllable word and the sound of the remaining part of the word (the rime)" (PRF, 13).

Because the information provided by the studies used in the NRP's meta-analysis was insufficient to delineate which of these approaches is most effective, these systematic phonics instructional approaches were grouped according to the following categories: synthetic, larger units, and miscellaneous.

The NRP also reports different practice opportunities that programs can provide in applying knowledge of the alphabetic system to reading and writing (NRP, 2-99):

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[10] The term *systematic* refers to a plan of instruction that "includes a carefully selected set of letter-sound relationships that are organized into a logical sequence" (PRF, 19). The term *explicit*, which is often used in conjunction with the term *systematic* when referring to phonics instruction, refers to programs that "provide teachers with precise directions for the teaching of these [i.e., letter-sound] relationships" (PRF, 19).

- Sounding out and blending individual letters, digraphs, or larger subunits (e.g., blends or final stems)
- Reading decodable texts that use the letter-sound relations that have been taught
- Writing texts using the letter-sound relations that have been taught and then reading these texts for further practice

In addition to the instructional methods used for teaching letter-sound relations and the different approaches for providing practice, systematic phonics instruction involves other variations (NRP, 2-104), including the following:

- Amount and type of phonemic awareness taught with phonics
- Distinctions about whether skills are presented in a hierarchy or multiple skills are learned together
- Pace of instruction
- Involvement of spelling instruction
- Extent of oral drill-and-practice, rule recitation, and worksheet activities
- Type of vocabulary control in texts
- Distinctions about whether phonics instruction is embedded or separate from the literacy curriculum
- Teaching approach (e.g., direct or constructivist[11])
- Interest level of materials for teachers and students

Nonsystematic phonics instruction. The NRP report also identified several different types of beginning reading programs (features of which might be combined) that do not teach phonics explicitly and systematically (NRP, 2-90). The following list describes examples (emphasis added):

- "In *whole-language programs*, the emphasis is on meaning-based reading and writing activities; phonics instruction is integrated into these activities but taught incidentally as teachers decide it is needed" (NRP, 2-90).
- "*Basal programs* consist of a teacher's manual and a complete set of books and materials that guide the teaching of beginning reading; some focus on whole-word or meaning-based activities with limited attention to letter-sound constituents of words and little or no instruction in how to blend letters to pronounce words" (NRP, 2-90).
- "In *sight word programs*, children begin by building a reading vocabulary of 50 to 100 words, and then later they learn about the alphabetic system" (NRP, 2-90).

In general, "programs of phonics instruction that are not systematic do not teach consonant and vowel letter-sound relationships in a prescribed sequence" and, instead, "encourage

[11] The literature reflects a common misunderstanding with respect to the interpretation of constructivist approaches to instruction. Typically, as has been done here, constructivism is juxtaposed against direct instruction when, in fact, a continuum of constructivist interpretations range from direct instruction to discovery-oriented instruction.

informal phonics instruction based on the teacher's perceptions of what students need to learn and when they need to learn it" (PRF, 16).

The contrast between systematic and nonsystematic phonics instruction is less obvious in the 2000s than it was in the 1960s when phonics instruction was being compared to the then-popular "look-say methods" (NRP, 2-102; see also Chall, 1967). At that time, the "look-say" method taught children to "read words as wholes … until they had acquired 50 to 100 words in their sight vocabularies" (NRP, 2-102). Phonics instruction and, hence, the teaching of letter-sound relations was delayed typically until the end of first grade (NRP, 2-102).

Today, whole language instruction is often identified as the "alternative to systematic phonics programs," but in contrast to the "look-say" method of the 1960s, we are more apt to find instruction on letter-sound relations (NRP, 2-102). The primary difference between whole language approaches and systematic phonics approaches today is that, in whole language classrooms, these letter-sound relations tend to be taught incidentally and unsystematically while students are engaged in reading and writing tasks (NRP, 2-102). Moreover, Reading First advocates note that "adding phonics workbooks or phonics activities to these programs of instruction [i.e., nonsystematic phonics instruction] has not been effective. Such 'add-ons' confuse rather than help children to read" (PRF, 17).

Systematic phonics instruction, therefore, involves the explicit teaching of a prespecified set of knowledge, and nonsystematic phonics instruction involves incidental teaching. Systematic phonics instruction can vary in its direct instructional approach, the opportunities it provides for practice (i.e., applying knowledge to reading and writing), and other variables. This information provides an important foundation for assisting schools in evaluating and implementing systematic phonics instruction.

Results of the NRP's meta-analysis comparing systematic and nonsystematic phonics. In comparing systematic phonics instruction to nonsystematic phonics or to programs with no phonics instruction, the NRP examined six types of outcomes (NRP, 2-110):

- Decoding of real words chosen to contain regular spelling-to-sound relationships
- Reading of nonsense words or pseudowords chosen to represent regular spelling-to-sound relationships
- Word identification (in some cases, words were chosen to represent irregular spelling-to-sound relationships)
- Spelling, assessed using either developmental stages for younger children or number of words correct
- Comprehension of material read silently or orally
- Oral reading of connected text (accuracy)

The NRP reached the following conclusion:

> Analysis of the effect sizes [$d = 0.44$] produced by these [systematic phonics] programs revealed that all were statistically greater than zero and none differed statistically from the others in magnitude. The conclusion drawn is that specific

> systematic phonics programs are all significantly more effective than non-phonics programs; however, they do not appear to differ significantly from each other in their effectiveness although more evidence is needed to verify the reliability of effect sizes for each program. (NRP, 2-93; see also NRP, 2-112)

Specifically, the NRP report concludes the following:

- "Systematic and explicit phonics instruction is more effective than non-systematic or no phonics instruction" (PRF, 13).
- "Systematic and explicit phonics instruction significantly improves kindergarten and first-grade children's word recognition and spelling" (PRF, 14).
- "Systematic and explicit phonics instruction significantly improves children's reading comprehension" (PRF, 14).

According to the NRP's report, the strongest effects occurred when children were asked to decode regularly spelled words ($d = 0.67$) and pseudowords ($d = 0.60$). The NRP concludes that "phonics instruction was especially effective in teaching children to decode novel words, one of the main goals of phonics" (NRP, 2-113). Effect sizes for comprehension ($d = 0.27$) and oral reading measures ($d = 0.25$), though still statistically significant, were not as large as they were for decoding. The NRP notes that "the target of phonics instruction is teaching children how to read words. Although word recognition skill [positively] influences how well children can read and comprehend text, there are other processes that are important as well" (NRP, 2-113). Therefore, they conclude that it is not surprising that the effect sizes for decoding would be stronger than the comprehension and oral reading measures.

Analysis of moderator variables. The National Reading Panel's meta-analysis revealed a range of conditions under which systematic phonics instruction took place. After a closer examination of these variables, several recommendations were made for structuring systematic phonics instruction in the classroom. However, the panel cautions the prescriptive use of these recommendations because the analysis is essentially correlational in nature, and further research would be required to demonstrate a causal relationship among these variables in their effectiveness in instruction.

The panel's analysis included looking more closely at different categories of phonics programs, specific phonics programs, different types of instructional delivery, and characteristics of students (see Special Populations section). Their analysis examined three categories of systematic phonics programs: synthetic phonics, larger-unit phonics, and miscellaneous phonics programs. Closer examination of each type of program demonstrated that "all three categories produced effect sizes that were significantly greater than zero" and that "all three types of phonics programs were more effective than control programs [i.e., nonsystematic or programs with no phonics instruction] in helping children learn to read" (NRP, 2-119). The NRP report recommends further research to determine whether the differences, particularly between synthetic and larger-unit approaches, are reliable (NRP, 2-119).

Of the specific systematic phonics programs identified in the meta-analysis, seven programs were most prevalent:

> Direct Instruction (also referred to as DISTAR and Reading Mastery)
> Lovett's adaptation of Direct Instruction (1994)
> Lovett's adaptation of the Benchmark Word Identification program (1994)
> The Lippincott Basic Reading program (1963, 1981)
> Orton-Gillingham programs (1940, 1956, 1969, 1979, 1984)
> Sing Spell Read and Write (1972)
> Beck and Mirtoff's New Primary Grades Reading System (1972)

Comparisons among the seven programs indicate that there were "sizable differences in effect sizes distinguishing the programs" but that the differences were not statistically different (NRP, 2-119). The NRP cautions readers that these results are merely suggestive because there were "too few comparisons assessing each program to yield reliable results" (NRP, 2-199). The NRP report also notes that these programs are "older and hence more frequently studied than newer programs" but not necessarily "any better than newer programs that were not analyzed" (NRP, 2-120).

Finally, the NRP identified three of the various types of instructional delivery: one-to-one tutoring, small group instruction, and classroom instruction. The panel had expected one-to-one tutoring to be the most effective because instruction could be "tailored to individual students" (NRP, 2-120). Analysis of the different types of instructional delivery "revealed that all produced positive effects that were statistically greater than zero, indicating that tutoring, small groups, and classes were all effective ways to deliver phonics instruction to students" (NRP, 2-120).

The NRP's analysis of moderator variables that have specific implications for instruction suggests that systematic phonics instruction regardless of its category (i.e., synthetic, larger-unit, miscellaneous), its specific program (e.g., Direct Instruction), or its system of delivery (i.e., one-to-one tutoring, small group, class) is more effective than nonsystematic programs or programs with no phonics instruction.

Words of caution in using results. Despite the solid support that systematic phonics instruction contributes to children's growth in reading regardless of the type of program or system of delivery, the panel urges caution in giving "blanket endorsement to all kinds of phonics programs" (NRP, 2-96):

> It is important to recognize that the goals of phonics instruction are to provide children with some key knowledge and skills and to ensure that they know how to apply this knowledge in their reading and writing. Phonics teaching is a means to an end. To be able to make use of letter-sound information, children need phonemic awareness. That is, they need to be able to blend sounds together to decode words, and they need to break spoken words into their constituent sounds to write words. *Programs that focus too much on the teaching of letter-sound relations and not enough on putting them to use are unlikely to be very effective. In implementing*

> *systematic phonics instruction, educators must keep the* end *in mind and ensure that children understand the purpose of learning letter-sounds and are able to apply their skills in their daily reading and writing activities.* (NRP, 2-96, emphasis added)

In addition, the NRP cautions educators to "avoid misapplication of the findings" from the meta-analysis by keeping in mind the following:

- The term *intensive* in the often-heard call for "intensive systematic phonics instruction" is usually not defined; research needs to further examine the optimal period of time for instruction (NRP, 2-96).
- Although scripts serve to standardize the delivery of instruction, teachers' contributions to the instructional process (i.e., their interest, judgment, and motivation) need to be further examined and understood (NRP, 2-96), particularly because phonics programs have tended to be "portrayed as involving 'dull drill' and 'meaningless worksheets'" (NRP, 2-97).
- Some phonics programs "suit some students better than others," particularly because children "vary greatly in the skills they bring to school" (NRP, 2-97). The effectiveness of programs that present a "fixed sequence of lessons" as compared to programs that "provide guidance in how to place students into flexible instructional groups" needs to be further examined (NRP, 2-97).
- Systematic phonics instruction needs to "integrated with other reading instruction to create a balanced reading program" and "not become the dominant component in a reading program" (NRP, 2-97). The NRP report recommends that "by emphasizing all of the processes that contribute to growth in reading, teachers will have the best chance of making every child a reader" (NRP, 2-97).

These words of caution serve to alert educators of the limits to what we know about systematic phonics instruction and its research base. This knowledge is essential when making decisions about systematic phonics instruction across the state of New Hampshire in Reading First schools.

Guidelines for evaluating programs of phonics instruction. Guidelines for evaluating programs of phonics instruction have been compiled to assist in the evaluation and selection of comprehensive reading programs. These guidelines indicate that "effective programs offer phonics instruction" (PRF, 16) that:

- helps teachers explicitly and systematically instruct students in how to relate letters and sounds, how to break spoken words into sounds, and how to blend sounds to form words;
- helps students understand why they are learning the relationships between letters and sounds;
- helps students apply their knowledge of phonics as they read words, sentences, and text;
- helps students apply what they learn about sounds and letters to their own writing;
- can be adapted to the needs of the individual students, based on assessment; and

- includes alphabetic knowledge, phonemic awareness, vocabulary development, the reading of text, and systematic phonics instruction.

In summary, the implications of SBRR for phonics instruction are complex and significant. First, research has demonstrated that systematic phonics instruction is effective in fostering phonics knowledge and the application of this knowledge to reading and spelling. Second, research has demonstrated that effective, systematic phonics instruction might vary in its approach, the type of program, and its system of instructional delivery. Finally, research has demonstrated that we have specific guidelines and cautionary measures that can be used to evaluate and select comprehensive reading programs that involve a phonics component.

Programs and materials. To teach phonics instruction effectively, teachers need access to appropriate instructional programs and materials. Specifically, teachers need (a) a comprehensive reading program that prespecifies, in a logical and systematic manner, the phonics knowledge to be taught directly and that illustrates explicitly how to teach letter-sound correspondences as well as how to demonstrate the application of this knowledge to reading and spelling (PRF, 16, 19); (b) supplemental and intervention programs, as well as materials such as leveled books or trade books with decodable text where children can apply specific letter-sound correspondences or larger subunits (PRF, 13, 17); and (c) activity sheets as well as spelling and writing opportunities (e.g., sentences, messages, and stories) through which students can apply letter-sound correspondences and larger units (PRF, 13, 17).

Special populations. The NRP was particularly interested in determining whether certain populations of children benefit more from systematic phonics instruction than others (e.g., kindergartners compared to first graders compared to older students; at-risk, low-achieving readers compared to disabled, low-achieving readers; and students from low-level SES backgrounds compared to students from middle-level SES backgrounds). The report determined the following results:

- "Systematic phonics instruction produces the biggest impact on growth in reading when it begins in kindergarten or 1st grade before children have learned to read independently. To be effective, phonics instruction introduced in kindergarten must be appropriately designed for learners and must begin with foundational knowledge involving letters and phonemic awareness" (NRP, 2-133).
- "Systematic phonics instruction is significantly more effective than non-phonics instruction in helping to prevent reading difficulties among at-risk students and in helping to remediate reading difficulties in disabled readers. No conclusion is drawn in the case of low-achieving readers because it is unclear why systematic phonics instruction produced little growth in their reading and whether the finding is even reliable" (NRP, 2-133).
- "Systematic phonics instruction is beneficial to students regardless of their socioeconomic status" (NRP, 2-134).

These findings have important implications for the populations that will best benefit from systematic phonics instruction. In addition, they will assist schools in understanding potential problems for those students who may not be making progress in reading.

Professional development. The NRP report identified three primary issues that have implications for teachers' professional development in learning how to deliver effective phonics instruction. These issues are (a) the contributions of teachers to the instructional process, (b) the training of teachers (in terms of both content and process), and (c) teachers' abilities to evaluate phonics programs.

The first issue concerns the contributions of teachers to the instructional process. As noted above (see "Words of caution" section), although scripted programs "may standardize instruction, they [also] may reduce teachers' interest in the teaching process or their motivation to teach phonics" (NRP, 2-135). Because some of the more effective phonics programs (based on large effect sizes) were scripted, this dynamic has implications for professional development because an important message about "how to maintain consistency of instruction and at the same time encourage unique contributions from teachers" will need to be communicated effectively to teachers (NRP, 2-135).

The second issue concerns the content and process of teacher training. Some phonics programs "require a sophisticated understanding of spelling, structural linguistics, and word etymology," and therefore, teachers need sufficient training in this content knowledge to ensure the effective use of these programs (NRP, 2-135). Moreover, the training not only needs to address critical content knowledge but also needs "to ensure that the issue of how best to prepare teachers to carry out this teaching effectively and creatively is given high priority" (NRP, 2-135, 136). In other words, the effective delivery of this content is essential to ensure effective phonics instruction.

Finally, the third issue concerns teaching teachers how to effectively evaluate phonics programs. The NRP explains: "Knowing that all phonics programs are not the same brings with it the implication that teachers must themselves be educated about how to evaluate different programs and to determine which are based on strong evidence and how they can most effectively use these programs in their own classrooms" (NRP, 2-136). This knowledge has specific implications for the content of a professional development program and raises the issue, again, about the importance of effective delivery of this content—both in terms of how teachers are engaged in the process of learning how to evaluate and how they actually evaluate programs.

Summary of Phonics

Phonics, the ability to learn letter-sound correspondences (and larger units) and to apply this knowledge to reading and writing, was selected by the NRP as one of five SBRR components because of its solid theoretical and research base as well as its longstanding and widespread acceptance (albeit differentially treated approaches) in a reading instruction program. Phonics information that was largely obtained from the NRP report and outlined above has specific implications for practice—namely, curriculum, assessment, instruction, programs and materials, special populations, and professional development. This information provides the essential foundation for the decisions the state has made concerning its Reading First plan

and will provide to eligible Reading First schools the necessary guidance in developing their local plans.

Fluency

Defined

Fluency is the ability to read text accurately, quickly, and with proper expression (NRP, 3-1). The PRF document elaborates on this definition by stating,

> Fluency is the ability to read a text accurately and quickly. When fluent readers read silently, they recognize words automatically. They group words quickly to help them gain meaning from what they read. Fluent readers read aloud effortlessly and with expression. Their reading sounds natural, as if they were speaking. Readers who have not yet developed fluency read slowly, word by word. Their oral reading is choppy and plodding. (PRF, 22)

Therefore, fluent readers demonstrate three characteristics: accuracy, automaticity, and expression. However, fluency has not always been defined in this manner.

Traditionally, fluency was viewed as the result of the ability to read words accurately (i.e., well-developed word recognition skills) (NRP, 3-1 and 3-6; PRF, 30; see also Harris & Hodges, 1995; LaBerge & Samuel, 1974). Therefore, until recently, instructional procedures have been directed toward simply increasing accurate word recognition rather than fostering all dimensions of fluency (PRF, 30).

However, as noted by the NRP report, "such [word recognition] skills do not inevitably lead to fluency" (NRP, 3-1). In other words, a child might be able to read the words in a text accurately, but the process of reading those words might be slow and laborious.

Fluency has also been used interchangeably with the term *automaticity* (PRF, 24). According to the PRF document,

> Automaticity is the fast, effortless word recognition that comes with a great deal of reading practice. In the early stages of learning to read, readers may be accurate but slow and inefficient at recognizing words. Continued reading practice helps word recognition become more automatic, rapid, and effortless. Automaticity refers only to accurate, speedy word recognition, not to reading with expression. (PRF, 24)

Moreover,

> Although some readers may recognize words automatically in isolation or on a list, they may not read the same words fluently when the words appear in sentences in connected text. Instant or automatic word recognition is a necessary, but not sufficient, reading skill. Students who can read words in isolation quickly may not be able to automatically transfer this "speed and accuracy." (PRF, 23)

Therefore, automaticity, like accurate word recognition, is a necessary but insufficient condition to constitute fluency.

Finally, children may read with accuracy and even with automaticity but still may not read with expression. According to PRF, "To read with expression, readers must be able to divide the text into meaningful chunks. These chunks include phrases and clauses. Readers must know to pause appropriately within and at the ends of sentences and when to change emphasis and tone" (PRF, 23).

Fluency, therefore, is more than just the ability to read words accurately. Fluency also involves the ability to read words quickly and with expression, which, in turn, requires a certain amount of interpretation of the text's meaning (e.g., knowing how to group words, knowing how to rapidly use punctuation, knowing where to place emphasis or where to pause, knowing how to use expression) (NRP, 3-6; see also Schreiber, 1980, 1987; Thurlow & van den Brock, 1977).

Two other key points need to be kept in mind when defining fluency:

- "Fluency develops gradually over considerable time and through substantial practice" (PRF, 23).
- "Fluency is not a stage of development at which readers can read all words quickly and easily. Fluency changes depending on what readers are reading, their familiarity with words, and the amount of their practice with reading text. Even very skilled readers may read in a slow, labored manner when reading texts with many unfamiliar words or topics" (PRF, 23).

Fluent readers, therefore, can read not only with accuracy but also with automaticity and proper expression (NRP, 3-1). The development of fluency skill develops over time and changes depending on the difficulty of material being read.

Rationale

Several reasons explain why fluency and, thus, the ability to read with accuracy, automaticity, and expression was identified by the NRP as one of five SBRR components.

First, as with phonemic awareness and phonics, a theoretical premise points to the importance of fluency. According to PRF,

> Fluency is important because it provides a bridge between word recognition and comprehension. Because fluent readers do not have to concentrate on decoding the words, they can focus their attention on what the text means. They can make connections among the ideas in the text and between the text and their background knowledge. In other words, fluent readers recognize words and comprehend at the same time. Less fluent readers, however, must focus their attention on figuring out the words, leaving them little attention for understanding the text. (PRF, 22)

In other words, the ability to read with accuracy and automaticity allows the reader to focus on comprehension, and the ability to read with expression requires the reader to anticipate the

meaning of the text. Therefore, fluency is a "critical component of skilled reading" (NRP, 3-1), bridging word recognition and comprehension.

Second, research has pointed to the importance of fluency as an essential aspect of reading. In 1995, a large-scale study conducted by the National Assessment of Educational Progress drew the nation's attention to the status of fluency achievement in American education (NRP 3-5; see also Pinnell et al., 1995). According to the NRP, "That study examined the reading fluency of a nationally representative sample of 4th graders and found 44% of students to be disfluent even with grade-level stories that the students had read under supportive testing conditions. Moreover, that study found a close relationship between fluency and reading comprehension. Students who are low in fluency may have difficulty getting the meaning of what they read" (NRP, 3-5). In general, this study suggested that "fluency is a neglected reading skill in many American classrooms, affecting many students' reading comprehension" (PRF, 23).

The meta-analysis conducted by the NRP further points to the importance of fluency. In the panel's analysis, the members conclude that fluency instruction, specifically guided and repeated reading procedures, "had a consistent, and positive effect on word recognition, fluency, and comprehension as measured by a variety of test instruments and at a range of grade levels" (NRP, 3-3).

Finally, fluency was included as one of the SBRR components, not because of its popularity but, rather, given its theoretical significance and research base, it should be receiving more attention. In other words, fluency is recognized as a critical reading skill (NRP, 3-1), yet it is believed to be the most neglected area of reading instruction (NRP, 3-1; see also Allington). In other words, few opportunities are provided for explicit instruction and practice in fluency.

In summary, then, the NRP identified fluency as a critical SBRR component because of its strong theoretical premise, its research base, and the fact that it has been a neglected area of instruction.

Implications for Practice

Fluency has implications for practice, specifically in terms of curriculum, assessment, instruction, programs and materials, special populations, and professional development. Each of these areas will be addressed in light of what we know about fluency.

Curriculum. To help children develop fluency skills in reading, teachers need to know what children are expected to know and what children are expected to be able to do with respect to fluency at different stages of literacy development. These tasks need to be reflected in local and state curricular documents as well as in the scope and sequence of a comprehensive reading program. The purpose of the discussion that follows is to list the curricular implications for fluency as suggested by the NRP report and the *Put Reading First* document.

Fluency brings three primary curricular implications:

- Accuracy: The ability to read text accurately
- Automaticity: The ability to read text quickly and efficiently
- Expression: The ability to read text with expression

Children need to know (a) that these skills are ones a fluent reader exhibits (i.e., recognize fluent versus nonfluent reading) and (b) how to apply these skills to reading. Although children may benefit from the opportunity to practice these skills in isolation (e.g., word or phrase flashcards), according to research, fluency will develop when they can apply these skills in an orchestrated fashion, with teacher guidance, to connected text. It is important to remember that fluency is the ability to read text accurately, quickly, and with expression; all three traits together constitute fluency. Moreover, children need the opportunity to develop and apply these skills to increasingly complex texts.

Assessment. Ongoing assessment of fluency is critical for determining "the effectiveness of instruction," for "setting instructional goals," and for ensuring that "students are making appropriate progress" (PRF, 30). The report published by the National Research Council, *Preventing Reading Difficulties in Young Children* explains that "because the ability to obtain meaning from print depends so strongly on the development of word recognition accuracy and reading fluency, both should be regularly assessed in the classroom, permitting timely and effective instructional response when difficulty or delay is apparent" (Snow, Burns, & Griffin, 1998, p. 7; see also NRP, 3-6).

To assess fluency, the NRP recommends both informal and standardized procedures (see also PRF, 30). In the panel's analysis of scientific studies, the group identified a range of outcome measures used to determine growth in fluency, including tests of word knowledge, comprehension, and fluency as well as a combination of these measures (NRP, 3-18).

According to PRF, "the most informal assessment is simply listening to students read aloud and making a judgment about their progress in fluency" (PRF, 30). Other informal procedures that provide an "adequate index of fluency" include informal reading inventories (Johnson, Kress, & Pikulski, 1987), miscue analysis (Goodman & Burke, 1972), pausing indices (Pinnell et al., 1995), running records (Clay, 1972), and reading speed calculations (Hasboruck & Tindal, 1992) (NRP, 3-9). However, PRF notes that these procedures can be time-consuming and that each of these procedures assess different dimensions of fluency (PRF, 30). Therefore, if an educator is using informal procedures, he or she needs to use ones that monitor progress of the different dimensions of fluency and comprehension and not just accurate word recognition.

In addition to informal procedures, more formal procedures need to be used to measure fluency. The PRF document suggests that the "easiest way to formally assess fluency is to take time samples of students' reading and to compare their performance (number of words read correctly per minute) with published oral reading fluency norms or standards" (PRF, 30; for specific procedure see PRF, 29).

According to the Reading First legislation and the *Secretary's Reading Leadership Academy* (U.S. DOE, 2002), a complete battery of assessment tools must include a combination of screening tools, diagnostic evaluation tools, progress monitoring tools, and outcome tools, and must meet the criteria for being "valid, reliable, and based on scientifically based reading research" (No Child Left Behind, p. 206). In addition, teachers will need to use informal tools, as informed by curricular documents and a comprehensive reading program consistent with SBRR, to inform classroom instruction. All of these assessment tools that are used to measure fluency are required for children in grades 1 through 3. Given the complexity of New Hampshire's Reading First assessment plan, the reader is referred to the Overview of Assessments chart, which summarizes the assessments required for all five SBRR components (see Broad Implications for SBRR section).

First, a brief screening tool, used at the beginning of the year, is needed to identify children at risk for reading failure; New Hampshire's battery of screening tools includes a test of children's fluency. The goal is not to exhaustively assess the various curricular implications of fluency but to selectively assess the most critical areas that predict success in reading (i.e., the ability to read with accuracy and automaticity[12]). For this purpose, New Hampshire has chosen to use the Phonological Awareness Literacy Screening (PALS) or the Dynamic Indicators of Basic Early Literacy Skills, 6th Edition (DIBELS), both of which include a fluency test. Examination of the technical information from the University of Virginia (see Appendix F) and the University of Oregon (see Appendix G) confirms that these fluency tests, as screening tools for grades 1 through 3, meet the Reading First criteria for being reliable, valid, and scientifically based.

Second, for those children who are identified as being at risk for not learning to read or who appear to be having difficulty with fluency (as determined by the screening tool), a diagnostic tool is used to identify specific areas to address for instruction. For this purpose, New Hampshire has selected the Test of Word Reading Efficiency (TOWRE). This information can be used to guide classroom instruction and varying levels of intervention. Examination of the technical information from the University of Oregon confirms that this fluency test, as a diagnostic tool for grades 1 through 3, meets the Reading First criteria for being reliable, valid, and scientifically based (see Appendix G).

Third, throughout the school year, children's progress in fluency needs to be monitored. For this purpose, progress monitoring tools are used to ensure that all children are making gains. New Hampshire has selected the Dynamic Indicators of Basic Early Literacy Skills, 6th Edition (DIBELS), and specifically the DIBELS Oral Reading Fluency subtest, to monitor progress in fluency. The progress monitoring tool will be used in a continuous, ongoing manner over the course of the year, particularly for children who have been identified as being at risk for reading failure. Schools will be expected to summarize the results of their findings and specify instructional implications in a report to local constituents and the NH DOE. If children do not appear to be making progress, the diagnostic tool will be administered to target specific areas of concern for instruction. Although the progress monitoring tool is not required by law to meet the standards of reliability, validity, and

[12] The ability to read with expression has been identified as a more difficult construct to measure.

scientifically based, the DIBELS test was approved by the University of Oregon as meeting these criteria (see Appendix G).

Fourth, for the purpose of program evaluation and examining overall student achievement, an outcome measure needs to be used to ensure pre- and post-test progress in fluency. New Hampshire has selected the Test of Word Reading Efficiency (TOWRE) to be used at the beginning and end of the school year. This tool was identified by the University of Oregon as meeting the Reading First criteria of reliability, validity, and scientifically based (see Appendix G).

Finally, teachers will be expected to use informal tools or "classroom-based instructional reading assessments" (No Child Left Behind, p. 206) that are consistent with the curricular implications of fluency (see curriculum section above) and with a comprehensive reading program to inform day-to-day instructional decisions. Specifically, these assessments "(1) [evaluate] children's learning based on systematic observations by teachers of children performing academic tasks that are part of their daily classroom experience; and (2) [are] used to improve instruction in reading, including classroom instruction (No Child Left Behind, p. 206). The working assumption is that a comprehensive reading program will guide teachers in their use of these informal tools.

To assess fluency, therefore, educators need to use a battery of assessment tools over the course of the school year that are reliable, valid, and scientifically based; in addition, they need to use informal tools to inform classroom instruction. New Hampshire has selected a battery of tools that meet these criteria and that make it possible to identify children early, diagnose specific problem areas, monitor progress, and measure outcomes.

Instruction. The purpose of the NRP's meta-analysis was to provide a summary of the evidence that supports the effectiveness of various instructional approaches intended to foster fluency. In general, "there is common agreement that fluency develops from reading practice" but researchers have not agreed on "what form such practice should take to be most effective" (NRP). The panel examined two approaches in particular: (a) repeated and monitored oral reading and (b) silent, independent reading with minimal guidance and feedback (NRP, 3-24; see also PRF, 24). The following sections will summarize the results of these findings and define these approaches.

Repeated and monitored oral reading.[13] In repeated and monitored oral reading, "students read passages aloud several times and receive guidance and feedback from the teacher" (NRP, 3-24). According to the NRP, these procedures include "repeated reading (Samuels, 1979), neurological impress (Heckelman, 1969), radio reading (Greene, 1979), paired reading (Topping, 1987), and a variety of similar techniques aimed at developing fluent

[13] The NRP report refers to this approach as "oral reading practice or guided repeated oral reading practice" (NRP, 3-24) whereas the PRF document refers to this approach as "repeated and monitored oral reading" or, alternatively, "repeated reading" (PRF, 24). In other words, the NRP report uses the term *guided* whereas the PRF document uses the term *monitored*. The authors of PRF may be trying to avoid using *guided* given its prevalent use and varied interpretations in different programs (e.g., Literacy Collaborative, Four Blocks, traditional DRTA).

reading habits" (e.g., shared reading, assisted reading) (NRP, 3-1). The PRF document alternatively describes some of these variations as "student-adult reading, choral (or unison) reading, tape-assisted reading, partner reading, and reader's theatre" (PRF, 27).

The NRP's meta-analysis concluded "that such procedures had a consistent, and positive impact on word recognition, fluency, and comprehension as measured by a variety of test instruments and at a range of grade levels" (NRP, 3-3 and 3-15–16; see also PRF, 24). However, the repeated reading procedures had differential effects on different reading outcomes: "The highest impact was on reading accuracy, with a mean effect of 0.55; the next was on reading fluency, with a mean effect size of 0.44; and the least, but still impressive impact was on reading comprehension, where the effect size was 0.35. In studies where these reading outcome measures were aggregated, the mean effect size was 0.50. These data provide strong support for the supposition that instruction in guided oral reading is effective in improving reading" (NRP, 3-3).

As indicated above, the NRP identified "a range of well-described instructional approaches" intended to foster fluency through repeated oral reading (NRP, 3-3). However, the PRF document notes that "the best strategy for developing reading fluency" is to provide "many opportunities to read the same passage orally several times" with adult guidance (PRF, 26). This type of repeated reading is referred to as "student-adult reading" and involves the following components:

- "The student reads one-on-one with an adult. The adult can be [the classroom teacher], a parent, a classroom aide, or a tutor" (PRF, 27).
- "The adult reads the text first, providing the students with a model of fluent reading" (PRF, 27).
- "Then the student reads the same passage to the adult with the adult providing assistance and encouragement" (PRF, 27).
- "The student rereads the passage until the reading is quite fluent. This should take approximately three to four readings" (PRF, 27).

Words of caution. Three admonitions are offered when using repeated reading procedures. The first caution concerns what students should read during repeated reading procedures. According to PRF, fluency "develops as a result of many opportunities to practice reading with a high degree of success" (PRF, 27). Therefore, texts "should be at the students independent reading level" where the text contains "mostly words that they know or can decode easily" (PRF, 27). The following information describes three levels of texts: independent, instructional, and frustration (taken from PRF, 27; emphasis added):

- "*Independent level text*. Relatively easy text for the reader, with no more than approximately 1 in 20 words difficult for the reader (95% success)" (PRF, 27)
- "*Instructional level text*. Challenging but manageable text for the reader, with no more than approximately 1 in 10 words difficult for the reader (90% success)" (PRF, 27)
- "*Frustration level text*. Difficult text for the reader, with more than 1 in 10 words difficult for the reader (less than 90% success)" (PRF, 27)

In addition to reading texts at the independent level, the texts used for repeated reading should be "relatively short—probably 50–200 words, depending on the age of the students" and should represent a variety of genres (PRF, 27). Using texts with these various characteristics will enable students to focus on fostering fluency rather than developing word recognition skills.

A second caution concerns round robin reading. Because instructional time is limited, the key to success of the repeated reading approach is the "actual time that students are actively engaged in reading that produces reading gains" (PRF, 26). Therefore, traditional approaches such as round robin reading, where students take turns reading parts of a text aloud, does not increase fluency, possibly, because "students only read small amounts of text, and they usually read this small portion only once" (PRF, 24; see also NRP, 3-11). Therefore, students who are developing fluency need to have sufficient time to reread passages with adult guidance.

A final caution concerns the amount of time spent on fluency instruction. The NRP explains that "too much attention to fluency issues within a reading lesson could detract from reading comprehension" (NRP, 3-20). The panel suggests, based on their review of the studies, that fluency instruction be provided "in the context of an overall reading program, not as stand-alone intervention" and that the work should be brief and engage students in other reading activities such as comprehension instruction (NRP, 3-20).

Variety of repeated reading procedures. The PRF document recommends several repeated reading procedures that promote fluency (for more detail, see PRF, 28):

- Student-adult reading: "Reading one-on-one with an adult, who provides a model of fluent reading, helps with word recognition, and provides feedback" (as described above) (PRF, 28)
- Choral reading: "Reading aloud simultaneously in a group." (PRF, 28)
- Tape-assisted reading: Reading aloud simultaneously or as an echo with an audio-taped model" (PRF, 29)
- Partner reading: "Reading aloud with a more fluent partner (or with a partner of equal ability) who provides a model of fluent reading, helps with word recognition, and provides feedback" (PRF, 29)
- Reader's theatre: "The rehearsing and performing before an audience of a dialogue-rich script derived from a book" (PRF, 28)

The critical components of the repeated reading procedure, therefore, include the following steps: (a) provide opportunities for repeated reading with adult guidance, (b) use materials that allow students to focus on fluency rather than word recognition tasks, (c) maximize the amount of time on task to reread a text, (d) keep fluency instruction brief and embedded in a comprehensive reading program, and (e) use a variety of procedures (e.g., choral reading or reader's theatre).

Silent, independent reading with minimal guidance and feedback. The second approach examined by the NRP involved "efforts to increase the amounts of independent or recreational reading that children engage in" (NRP, 3-1). Various labels have been used to describe these approaches, including Silent Sustained Reading (SSR), Drop Everything and Read (DEAR), as well as specific programs (e.g., Accelerated Reader, Reading Counts) and various incentive programs (e.g., Pizza Hut). Typically, these approaches "encourage students to read extensively on their own or with minimal guidance and feedback" (NRP, 3-1).

According to PRF, "Many studies have found a strong relationship between reading ability and how much a student reads. On the basis of this evidence, teachers have long been encouraged to promote voluntary reading in the classroom" (PRF, 25). However, these studies simply correlate reading ability and the amount of time spent reading; they do not indicate that the amount of time spent reading actually contributes to increased reading ability. The NRP further explains, "Although correlational findings may be useful, they also can be deceptive because correlations tell nothing about the direction or sequence of a relationship. That good readers read more could be because reading practice contributes to reading attainment, but it could also be simply that better readers choose to read more because they are good at it" (NRP, 3-10).

Because of the limited number of studies that adhered to the NRP criteria, a meta-analysis was not possible when examining the effectiveness of silent, independent reading with minimal guidance and feedback (NRP, 3-2). Therefore, the research base is insufficient to support the idea that these approaches make substantial contributions to reading achievement. As noted by PRF, "Research … has not yet confirmed whether independent silent reading with minimal guidance or feedback improves reading achievement and fluency. Neither has it proven that more silent reading in the classroom cannot work: its effectiveness without guidance or feedback is as yet unproven" (PRF, 25).

Although these approaches are intuitively appealing and, consequently, have widespread appeal among many educators, the NRP and PRF recommend that educators be cautious in their use of silent, independent reading. In general, the NRP recommends the use of "explicit compared to more implicit instructional approaches for improving reading fluency" (NRP, 3-4). According to PRF, "the research suggests that there are more beneficial ways to spend reading instructional time than to have students read independently in the classroom without reading instruction" (PRF, 25). That document goes on to argue that "reading fluency growth is greatest when students are working directly with you. Therefore, you should use most of your allocated reading instruction time for direct teaching of reading skills and strategies" (PRF, 29). This approach is more likely to be "an effective and efficient" use of time, especially for struggling readers and for readers who have not yet attained fluency (or independence) (PRF, 29).

However, in lieu of abandoning a practice that intuitively makes sense, especially if we are abandoning it because we do not have the research base to indicate whether it contributes to fluency and reading achievement, the NRP and PRF documents recommend combining silent, independent reading with other approaches. They recommend encouraging students to

read independently at home with an adult or family members or on their own; they also recommend encouraging students to read independently during independent work time in the classroom (e.g., while a group of children receive small group instruction).

In summary, the NRP report clearly indicates that research supports the use of guided, repeated reading in fostering fluency rather than the use of silent, independent reading with minimal guidance and feedback. Specific guidance is provided for using guided, repeated reading procedures and for the continued use of silent, independent reading without compromising the efficient and effective use of classroom instructional time.

Programs and materials. To teach fluency instruction effectively, teachers need access to appropriate instructional programs and materials. Specifically, teachers need (a) a comprehensive reading program that prespecifies the explicit teaching of fluency with appropriately leveled reading material at the independent level (see explanation above); and (b) supplemental and intervention programs, as well as materials such as big books, Reader's Theatre scripts, charts, taped books, and appropriately leveled books or trade books to provide for additional repeated reading practice with adult guidance (PRF, 28–29). Although the NRP report indicates that repeated reading procedures do not require "lots of special equipment or materials," they, at the same time, call for more research that would examine "the types of materials that lead to the biggest gains" when repeated reading procedures are used (NRP, 3-28).

Special populations. The NRP provides little information about the effect of fluency instruction for different populations of students. The NRP explains that the studies the panel reviewed "as a collection have not provided sufficient data to allow for a sound analysis of the relative impact of repeated reading procedures on students at different grade levels" (NRP, 3-17). However, the panel notes that "repeated reading procedures have a clear impact on the reading ability of non-impaired readers through at least Grade 4, as well as on students with various kinds of reading problems throughout high school" (NRP, 3-3 and 3-17; see also PRF, 24). The panel calls for more research that would examine "the impact of these procedures on the reading development of normal readers at different points along the continuum" (NRP, 3-20). In addition, the panel calls for more research that looks at "the impact of these procedures on nonimpaired readers" to determine "how the long term the benefits [of this procedure] can be maintained" (NRP, 3-20).

Professional development. Few comments were made by the NRP about the professional development of teachers other than to note that repeated reading procedures are "not particularly difficult to use" (NRP, 3-20) and require "minimal special training" (NRP, 3-28). Moreover, the guidance offered during repeated reading procedures can be provided by the classroom teacher, a parent, a classroom aide, or a tutor (PRF, 27).

Summary of Fluency

Fluency, the ability to read text accurately, quickly, and with proper expression, was selected by the NRP as one of five SBRR components for its sound theoretical and research base as well as for the fact that it has been a neglected area of instruction. Fluency has specific

implications for practice—namely, curriculum, assessment, instruction, programs and materials, special populations, and professional development. Information that was largely obtained from the NRP report and the PRF document and that was outlined above provides the essential foundation for the decisions the state has made for its Reading First plan and will provide the necessary guidance to schools that are eligible for Reading First in developing their local plans.

Vocabulary

In the NRP report, vocabulary is discussed under the umbrella of comprehension. The panel notes that "reading comprehension is a cognitive process that integrates complex skills and cannot be understood without examining the critical role of vocabulary learning and instruction and its development" (NRP, 4-1; see also NRP, 4-11). Therefore, although vocabulary is identified as one of five critical SBRR components, the reader needs to remember that it is integrally related to comprehension.

Defined

The PRF document defines vocabulary as "the words we must know to communicate effectively" (PRF, 34). However, the NRP report explains that vocabulary is difficult to define (and research) because it is so closely associated with comprehension:

Both vocabulary and comprehension involve the meaning of the text, albeit at different levels. Vocabulary is generally tied closely to individual words while comprehension is more often thought of in much larger units. To get to the comprehension of larger units requires the requisite process of the words. Precisely, separating the two processes is difficult, if not impossible. (NRP, 4-15)

Although the term *vocabulary* is imprecisely defined in the context of comprehension, these definitions clarify that vocabulary is defined at the word level and contributes substantially to the meaning of the text. In other words, "readers cannot understand what they are reading without knowing what most of the words mean" (PRF, 34).

The NRP report notes that researchers distinguish from among many different types of vocabularies, including the following (NRP, 4-15; NRP, 4-16; NRP, 34):

- Receptive vocabulary: The vocabulary that we can understand when it is presented to us in text or as we listen to other speak
- Productive vocabulary: The vocabulary we use in writing or when speaking to others
- Oral vocabulary: Words that are recognized in speaking or listening
- Reading vocabulary: Words that are used or recognized in print
- Sight vocabulary: A subset of reading vocabulary that does not require explicit word recognition processing

Alternatively, the PRF document uses the following terms to identify these various vocabularies: *listening vocabulary*, *speaking vocabulary*, *reading vocabulary*, and *writing vocabulary* (PRF, 34). This document will use the PRF categories because those categories eliminate some of the redundancy evident above (e.g., receptive vocabulary involves oral, reading, and sight vocabulary). However, the terms used in the NRP are commonly used and, therefore, are included simply to alert the reader to alternative terminology.

In summary, vocabulary refers to the words we use or must know to communicate effectively and includes receptive and productive vocabularies or, alternatively, listening, speaking, reading, and writing vocabularies. Vocabulary is integrally related to comprehension and, therefore, contributes substantially to the meaning of a text (whether written or oral).

Rationale

Several reasons explain why vocabulary and, hence, the ability to understand and use words, was identified by the NRP as one of five SBRR components. First, as with the previous components, a theoretical premise points to the importance of vocabulary. According to the NRP, scholars have long recognized the theoretical importance of vocabulary knowledge (NRP, 4-3; NRP, 4-15; see also Whipple, 1925; Davis, 1942). The NRP captures the essence of this line of thinking in the following description:

Vocabulary occupies an important position in learning to read. As a learner begins to read, reading vocabulary encountered in texts is mapped onto the oral vocabulary the learner brings to the task. The reader learns to translate the (relatively) unfamiliar words in print into speech, with the expectation that the speech forms will be easier to comprehend. Benefits in understanding text by applying letter-sound correspondences to printed material come about only if the target word is in the learner's oral vocabulary. When the word is not in the learner's oral vocabulary, it will not be understood when it occurs in print. Vocabulary occupies an important middle ground in learning to read. Oral vocabulary is a key to learning to make the transition from oral to written forms. Reading vocabulary is crucial to the comprehension process of a skilled reader. (NRP, 4-3; see also NRP, 4-15)

This theoretical conceptualization clarifies that vocabulary "plays an important part in learning to read" and that beginning readers "have a much more difficult time reading words that are not already part of their oral vocabulary" (PRF, 34). Moreover, "readers must know what most of the words mean before they can understand what they are reading" (PRF, 45). In other words, as readers develop, they need to understand the words in a text (whether oral or written).

The theoretical importance of vocabulary has been supported, albeit minimally, by the research. The NRP report notes that "recent research has focused more on overall comprehension than on vocabulary," and methods of teaching reading have traditionally treated vocabulary instruction as an inclusive feature of comprehension instruction (NRP, 4-15).

Of the vocabulary studies available, the NRP report concludes that an insufficient number of studies met the NRP criteria for inclusion in a meta-analysis (NRP, 4-5). According to the NRP,

> Many studies have shown that reading ability and vocabulary size are related, but the *causal* link between increasing vocabulary and an increase in comprehension has not been demonstrated. That is, it has been difficult to demonstrate that teaching vocabulary improves reading ability. (NRP, 4-15, emphasis added)

However, despite the lack of causal research available, the NRP was able to use the existing research base to identify trends associated with effective vocabulary instruction, which, in turn, are believed (but not adequately demonstrated) to contribute to reading ability and vocabulary growth (NRP, 4-6). In other words, the NRP discovered enough studies to indicate the potential effect of vocabulary instruction on reading ability, but they were not able to find sufficient studies to demonstrate a causal link.

Therefore, the NRP report identified vocabulary as one of five critical SBRR components primarily because of its theoretical and limited research base. Vocabulary contributes substantially to our ability to read effectively, even before we learn to read, and instruction appears to have the potential for further enhancing our vocabulary.

Implications for Practice

Vocabulary, given its scope and importance, has implications for practice, specifically in terms of curriculum, assessment, instruction, programs and materials, special populations, and professional development. Each of these areas will be addressed in light of what we know about vocabulary.

Curriculum. To help children use and develop vocabulary knowledge, teachers need to know what children are expected to know and what children are expected to be able to do at different stages of literacy development. These tasks need to be reflected in local and state curricular documents as well as in the scope and sequence of a comprehensive reading program. The purpose of the section that follows is to list the curricular implications for vocabulary as suggested by the NRP report and the *Put Reading First* document.

As suggested by the various definitions of vocabulary, the implications for curriculum are complex and should address both receptive (i.e., listening and reading) and productive (i.e., speaking and writing) vocabularies. Specifically, curricular documents should address the following:

- Listening vocabulary: The words we need to know to understand what we hear
- Speaking vocabulary: The words we use when we speak
- Reading vocabulary: The words we need to know to understand what we read
- Writing vocabulary: The words we use in writing

Of course, in considering these various vocabularies for curricular documents, the question is What words should be taught? (PRF, 41). The PRF document offers some specific guidance to address this question. First, it recommends that teachers should not teach "all the words in a text that [children] might not already know" (PRF, 41) and provides several reasons for being selective:

- "The text may have a great many words that are unknown to students—too many for direct instruction" (PRF, 41).

- "Direct vocabulary instruction can take a lot of class time—time that you might better spend on having your students read" (PRF, 41).
- "Your students can understand most texts without knowing the meaning of every word in the text" (PRF, 41).
- "Your students need opportunities to use word-learning strategies to learn on their own the meanings of unknown words" (PRF, 41).

Instead, the PRF document recommends thoroughly teaching "only a few new words (perhaps eight or ten) per week" and stresses the importance of selecting these words carefully (PRF, 41).[14]

Second, the PRF document recommends using the following criteria for selecting words:

- Important words: "Teach those words that are important for understanding a concept or the text" (PRF, 42).
- Useful words: "Teach words that students are likely to see and use again and again" (PRF, 42).
- Difficult words: "Provide instruction for words that are particularly difficult for your students such as words with multiple meanings (i.e., words with same spelling or pronunciation) or idiomatic expressions (i.e., words in expression do not usually mean what individual words mean)" (PRF, 42).

Third, the PRF document recommends teaching students "to use word-learning strategies to figure out the meanings of other words in the text" (PRF, 42). These strategies include specific word instruction and word-learning strategies. Finally, the PRF document recommends that teachers "foster word *consciousness*—an awareness of and interest in words, their meanings, and their power" (PRF, 44).

In summary, specific curricular implications are apparent for vocabulary, especially for the way it is defined in these documents and, particularly, in terms of the process to develop different types of vocabularies. Teachers are encouraged to selectively choose words, to foster word-learning strategies, and develop word consciousness in students.

Assessment. How do we assess children's knowledge and growth in vocabulary? The PRF document explains that we cannot say that students "either know or not know words. Rather, they know words to varying degrees" (PRF, 43). Specifically, students will exhibit varying levels of word knowledge: unknown, acquainted, and established. These varying levels of word knowledge have implications for understanding how we go about assessing children's vocabulary knowledge and growth. In general, "students can usually get by with some words at the unknown or acquainted levels," but if students are to understand a text fully, "they need to have an established level of knowledge for most of the words that they read" (PRF, 43). Given this basic understanding with respect to varying levels of word knowledge, we are in a position to better understand the ways in which vocabulary is assessed.

[14] This recommendation could be applied to texts associated with videos or read alouds.

According to the NRP report, vocabulary is often measured "using a plethora" of measures (including standardized and experimenter-generated assessments, see NRP, 4-24), indicating that "there is no single standard" (NRP, 4-26). In addition, the "category of vocabulary being measured varies," for example, receptive vocabulary is different from productive types of vocabularies (NRP, 4-26). Finally, standardized measures "provide a global measure of vocabulary and may be used to provide a baseline," but "instruments that match the instruction will provide better information about the specific learning of the students" (NRP, 4-27). In other words, "the standardized tests did not seem to be sufficiently sensitive to vocabulary changes to be used as dependent measures" and might be more "useful for general screening pretests" to indicate who needs vocabulary instruction (NRP, 4-24).

Given these observations, the panel "suggests that using more than a single measure of vocabulary is critical for sound evaluation" (NRP, 4-26). Moreover, the panel suggests that (a) "assessing vocabulary growth would be best done with teacher generated instruments as at least one component of evaluation" and (b) "there may be a need for the development of standardized measures that are much more sensitive to the nuances and complexities involved in vocabulary acquisition" (NRP, 4-24).

The NRP identifies several approaches used to assess vocabulary knowledge, including the following:

- Have the learner select a definition from a list of alternatives or, conversely, have the learner select a word (from a list of alternatives) for the definition (NRP, 4-16)
- Have the learner generate a definition for a word (NRP, 4-16)

In general, the first approach is deemed more efficient in testing situations; the latter approach "requires a judgment about the response" that has been generated. Also, the first approach provides different results because "recognition [or receptive] vocabulary is measurably larger than productive vocabulary" (NRP, 4-16).

According to the Reading First legislation and the *Secretary's Reading Leadership Academy* (U.S. DOE, 2002), a battery of assessment tools must include a combination of screening tools, diagnostic evaluation tools, progress monitoring tools, and outcome tools, and must meet the criteria for being "valid, reliable, and based on scientifically based reading research" (No Child Left Behind, p. 206). In addition, teachers will need to use informal tools, as informed by curricular documents and a comprehensive reading program consistent with SBRR, to inform classroom instruction. All of these assessment tools are required, for the purpose of measuring vocabulary, for children in kindergarten through Grade 3. Given the complexity of New Hampshire's Reading First assessment plan, the reader is referred to the Overview of Assessments chart, which summarizes the assessments required for all five SBRR components (see Broad Implications of SBRR section).

First, a brief screening tool, used at the beginning of the year, is needed to identify children at risk for reading failure; included in this screening is a test of children's knowledge of vocabulary. The goal is not to exhaustively assess the various curricular implications of vocabulary knowledge but to selectively assess the most critical areas that predict success in

reading (i.e., the ability to understand or use words). For this purpose, New Hampshire has chosen to use the Dynamic Indicators of Basic Early Literacy Skills, 6th Edition (DIBELS), and specifically the Word Use Fluency subtest. We noted that Virginia's Reading First plan indicates that this subtest has been approved by the U.S. DOE to be used for the purpose of screening vocabulary knowledge. Technical information from the DIBELS Administration and Scoring Guide indicates that "[t]entatively, students in the lowest 20 percent of a school district using local norms should be considered at risk for poor language and reading outcomes, and those between the 20th percentile and 40th percentile should be considered at some risk" (Good & Kaminski, 2002). New Hampshire finds the Word Use Fluency subtest a powerful tool for quickly identifying children who may be having difficulty with vocabulary and who would then be assessed in greater detail using a diagnostic tool (as described below).

Second, for those children who are identified as being at risk for not learning to read or who appear to be having difficulty with vocabulary (as determined by the screening tool), a diagnostic tool is used to identify specific areas to address for instruction. For this purpose, New Hampshire has selected the Peabody Picture Vocabulary Test (PPVT-3) and the Expressive Vocabulary Test (EVT). These tests provide more detailed information about children's vocabulary knowledge and can be used to guide classroom instruction and varying levels of intervention. Examination of the technical information from the University of Oregon confirms that these vocabulary tests, as diagnostic tools for grades kindergarten through 3, meet the Reading First criteria for being reliable, valid, and scientifically based (see Appendix G).

Third, throughout the school year, children's progress in vocabulary needs to be monitored. For this purpose, progress monitoring tools are used to ensure that all children are making gains. New Hampshire has selected the Dynamic Indicators of Basic Early Literacy Skills, 6th Edition (DIBELS), and specifically the Word Use Fluency subtest, to monitor progress in vocabulary. The progress monitoring tool will be used in a continuous, ongoing manner over the course of the year, particularly for children who have been identified as being at risk for reading failure. Schools will be expected to summarize the results of their findings and specify instructional implications in a report to local constituents and the NH DOE. If children do not appear to be making progress, the diagnostic tool will be administered to target specific areas of concern for instruction. This test was approved by the U.S. DOE to be used for the purpose of screening vocabulary knowledge in Virginia's Reading First plan (see screening tool above).

Fourth, for the purpose of evaluating programs and examining overall student achievement, an outcome measure needs to be used to ensure pre- and post-test progress in vocabulary. New Hampshire has selected the Stanford Achievement Test, 10th Edition (SAT-10) to be used at the beginning and end of the school year. This test was identified by the University of Oregon as meeting the Reading First criteria of being reliable, valid, and scientifically based (see Appendix G).

Finally, teachers will be expected to use informal tools or "classroom-based instructional reading assessments" (No Child Left Behind, p. 206), consistent with the curricular

implications of vocabulary (see curriculum section above) and a comprehensive reading program, to inform day-to-day instructional decisions. Specifically, these assessments "(1) [evaluate] children's learning based on systematic observations by teachers of children performing academic tasks that are part of their daily classroom experience; and (2) [are] used to improve instruction in reading, including classroom instruction (No Child Left Behind, p. 206). The assumption is that a comprehensive reading program will guide teachers in their use of these informal tools; for those programs that do not provide these tools, informal tools will need to be provided to supplement the program.

To assess vocabulary, therefore, educators need to use a battery of assessment tools over the course of the school year that are reliable, valid, and scientifically based; in addition, educators need to use informal tools to inform classroom instruction. New Hampshire has selected a battery of tools that meet these criteria and make it possible to identify children early, diagnose specific problem areas, monitor progress, and measure outcomes.

Instruction. The purpose of the NRP report was to identify research-based instructional practices that foster vocabulary development and reading achievement, particularly text comprehension. Despite an exhaustive survey of recent research, the NRP was not able to identify a sufficient number of scientific studies that met the NRP criteria for inclusion in a meta-analysis. The studies "revealed a heterogeneous set of methodologies, implementations, and conceptions of vocabulary instruction" (NRP, 4-3). Instead, the NRP chose to focus on the "important and interesting trends" that were reported in the experimental studies that were available to them (NRP, 4-17).

These trends have specific implications for vocabulary instruction. They include the following (taken directly from NRP, 4-4, emphasis added):

- There is a need for *direct instruction* of vocabulary items required for a specific text (including the pre-instruction of vocabulary words prior to reading).
- *Repetition and multiple exposure* to vocabulary items are important.
- *Learning in rich contexts* is valuable for vocabulary learning.
- Vocabulary tasks should be *restructured* as necessary.
- Vocabulary learning is effective when it entails *active engagement* in learning tasks.
- *Computer technology* can be used effectively to help teach vocabulary.
- Vocabulary can be acquired through *incidental learning*.
- *Dependence on a single vocabulary instruction method* will not result in optimal learning.

The NRP concludes that "a great deal is known about the ways in which vocabulary increases under highly controlled conditions, but much less is known about the ways in which such growth can be fostered in instructional contexts" (NRP, 4-14). The NRP recommends that the following topics, which have specific implications for instruction, be further investigated:

- What are specific vocabulary instruction needs of students at different grade and ability levels?
- What are the more general effects of vocabulary instruction across the grades?
- What is optimal use of computer (and other) technologies in vocabulary instruction?
- What is the precise role of multimedia learning in vocabulary acquisition and across the grades?
- How should vocabulary be integrated in comprehension instruction for optimal benefits to the students?
- What are the optimal combinations of various methods of vocabulary instruction?

These research topics are highlighted because practitioners are likely to have similar questions and may be surprised that research does not yet speak to these questions.

Different methods. The NRP report identifies five different methods of teaching vocabulary observed in the studies they examined (see also NRP, 4-33, for more detailed analysis of these methods). They include the following:

- Explicit Instruction: Students are given definitions or other attributes of words to be learned.
- Implicit Instruction: Students are exposed to words or given opportunities to do a great deal of reading.
- Multimedia Methods: Vocabulary is taught by going beyond text to include other media such as graphic representations, hypertext, or American Sign Language that uses a haptic medium.
- Capacity Methods: Practice is emphasized to increase capacity through making reading automatic.
- Association Methods: Learners are encouraged to draw connections between what they do know and words they encounter that they do not know. (NRP, 4-3)

The PRF document identifies specific guidelines for vocabulary instruction that emphasize implicit and explicit methods. It notes that "scientific research on vocabulary instruction reveals that (1) most vocabulary is learned indirectly, and (2) some vocabulary must be taught directly" (PRF, 35):

- Indirect (or Implicit) Vocabulary Learning: "Children learn the meaning of most words indirectly, through everyday experiences with oral and written language" (PRF, 35). Three ways in which children learn indirect vocabulary:

  (1) **They engage daily in oral language.** "The more oral language experiences children have [with other people, especially adults], the more word meanings they learn" (PRF, 35).

  (2) **They listen to adults read to them.** "Conversations about books [including definitions of unfamiliar words] help children to learn new words and

concepts and to relate them to their prior knowledge and experience" (PRF, 35).

(3) **They read extensively on their own.** "The more children read on their own, the more words they encounter and the more word meanings they learn" (PRF, 35).

- Direct (or Explicit) Vocabulary Learning: "Although a great deal of vocabulary is learned indirectly, some vocabulary should be taught directly" (PRF, 36). The PRF document argues that "direct instruction helps students learn difficult words, such as words that represent complex concepts that are not part of the students' everyday experiences," and "leads to better reading comprehension" (PRF, 36).

  Two primary ways in which children learn direct vocabulary:

  (1) **They receive specific word instruction.** "Specific word instruction, or teaching individual words, can deepen students' knowledge of word meanings," and "it also can help them use words accurately in speaking and writing" (PRF, 36).
    - Teaching specific words before reading helps both vocabulary learning and reading comprehension.
    - Extended instruction promotes active engagement with vocabulary improves word learning.
    - Repeated exposure to vocabulary in many contexts aids word learning.

  (2) **They practice word-learning strategies.** Because teachers cannot "provide specific instruction for all the words their students do not know,… students also need to be able to determine the meaning of words that are new to them but not taught directly to them" (PRF, 37). These word-learning strategies include
    - Using dictionaries and other reference aids,
    - Using word parts (e.g., affixes including suffixes and prefixes, base words, word roots), and
    - Using context clues (e.g., definitions, restatements, examples or descriptions surrounding the word in question).

Different types of word learning. The PRF document explains that, whether students learn new words indirectly or directly, they encounter different types of word learning contexts. Indirect and direct vocabulary learning (and, hence, instruction) will vary depending on a student's familiarity with a word. The PRF document identifies four different kinds of word-learning scenarios:

- Learning a new meaning for a known word
- Learning the meaning for a new word representing a known concept
- Learning the meaning of a new word representing an unknown concept
- Clarifying and enriching the meaning of a known word

These different types of word-learning conditions vary in their degree of difficulty and, therefore, have implications for the kind of instruction that is needed. For example, the PRF document explains that "one of the most common, yet challenging is the third type" because the student is learning both a new concept and a new word, which is characteristic of "much of the learning in the content area" (PRF, 43). As noted above, an important part of the instructional process involves assessing the level (unknown, acquainted, or established) on which a student relates to a word or concept.

In summary, the NRP report identified specific trends associated with experimental research that inform how vocabulary instruction ought to look. In particular, the NRP and PRF documents recommend that vocabulary be developed (a) indirectly by engaging students in oral language, read alouds, and independent reading, and (b) directly by engaging students in specific word instruction and word-learning strategies (PRF, 45). Vocabulary learning and instruction will vary depending on the students' degree of familiarity with both the words and concepts.

Programs and materials. To teach vocabulary instruction effectively, teachers need access to appropriate instructional programs and materials. Specifically, teachers need (a) a comprehensive reading program that prespecifies the ways in which teachers can foster the implicit and explicit teaching of vocabulary (reference) with appropriately leveled reading material at the independent and instructional level, and (b) supplemental and intervention programs, as well as materials such as quality read aloud books, reference materials, and appropriately leveled books or trade books for independent and instructional reading across a variety of genres to broaden children's listening, speaking, reading, and writing vocabularies.

Special populations. The NRP's analysis of the experimental research indicates that few of the scientific studies considered for review fell "outside the range of 3rd to 8th grade." Those that did fall outside this range looked at "relatively little research on vocabulary instruction in the early grades" (NRP, 4-18). The panel suggests that this tendency may have resulted from several possible causes: (a) "less emphasis on methods in the early grades"; (b) "teaching vocabulary is often not separate from other instruction in the early grades"; and (c) "much of early reading is, at least theoretically, done with texts that do not exceed the vocabularies of the most early readers" (NRP, 4-18). The results from the NRP's analysis suggest that, despite the restricted grade range of studies, "various ability levels and ages can significantly affect learning gains from vocabulary instruction methods" (NRP, 4-18; see also NRP, 4-4).

Professional development. The NRP notes that we need to further investigate the professional development needs "for teachers to become proficient in vocabulary instruction" (NRP, 4-5; see also NRP, 4-28).

Summary of Vocabulary

Vocabulary knowledge, the words we must know to communicate effectively, was selected by the NRP as one of five SBRR components for its sound theoretical yet limited research base, and has specific implications for practice—namely, curriculum, assessment, instruction,

programs and materials, special populations, and professional development. Information that was obtained largely from the NRP report and the PRF document and that is outlined above provides the essential foundation for decisions the state has made for its Reading First plan and will provide the necessary guidance to schools that are eligible for Reading First in developing their local plans.

Comprehension

Defined

Comprehension, according to the National Reading Panel (NRP) report, is "the essence of reading" (NRP, 4-39; see also Durkin, 1993) or, alternatively, according to the PRF document, "the reason for reading" (PRF, 48).

Research on comprehension for the last 30 years has been guided by the "cognitive conceptualization of reading" whereby reading and, hence, reading comprehension is defined as a "purposeful and active" process (NRP 4-39; PRF, 48; see also Pressley & Afflerbach, 1995). In other words, good readers "have a purpose for reading," and they "think actively as they read" (PRF, 48). According to this cognitive conceptualization of reading, the NRP states,

> A reader can read a text to learn, to find out information, or to be entertained. These various purposes of understanding require that the reader use knowledge of the world, including language and print. This knowledge enables the reader to make meaning of the text, to form memory representations of these meanings, and to use them to communicate with others information about what was read. (NRP, 4-39)

The Reading First subpart legislation further elaborates on this active and purposeful process by defining reading comprehension as "the development of appropriate active strategies to derive meaning from print" (No Child Left Behind, p. 203–205). These "strategies" are "conscious plans" (PRF, 49) or "procedures" (NRP, 4-40) that readers use to "become purposeful, active readers" and "to make sense of text" (PRF, 49).

Reading comprehension, therefore, is a complex, cognitive process; it is a purposeful and active process that requires intentional and thoughtful interaction between the reader and the text (i.e., application of strategies) to make meaning, remember these meanings, and communicate these meanings for a variety of purposes.

Rationale

Several reasons explain why comprehension (and, hence, the ability to read purposefully and actively) was identified by the NRP as one of the five SBRR components.

First and foremost is the theoretical premise pointing to the importance of comprehension as an active and purposeful endeavor. In the last 30 years, our conceptualization of reading comprehension and, hence, the role of the reader has shifted from a passive, receptive process to an active, purposeful process (NRP, 4-39). The NRP describes this shift in emphasis to a more active, purposeful process:

> Reading comprehension was seen not as a passive, receptive process but as an active one that engaged the reader. Reading came to be seen as intentional thinking during which meaning is constructed through interactions between text and reader (Durkin,

> 1993). According to this view, meaning resides in the intentional, problem-solving, thinking processes of the reader that occur during an interchange with a text. The content of meaning is influenced by the text and by the reader's prior knowledge that is brought to bear on it (Anderson & Pearson, 1984). Reading comprehension was seen as the construction of the meaning of a written text through a reciprocal interchange of the ideas between the reader and the message in a particular text (see for example, Harris & Hodges, 1995, definition #2, p. 39). The important theoretical idea here was that readers construct meaning representations of the text as they read and that these representations were essential to memory and use of what was read and understood. (NRP, 4-39)

This shift in perspective has led to the "enthusiastic advocacy of instruction of reading strategies" (NRP, 4-39; see Duffy, 1993; Brown et al., 1996; Rosenshine, Meister, & Chapman, 1996)[15] and has led to the identification and teaching of strategies that readers could learn to enhance their comprehension (NRP, 4-39).

Second, we know from research that comprehension instruction—specifically, explicit strategy instruction—plays a critical role in the development of children as readers (i.e., in acquiring purposeful and active strategies). The NRP notes, "the cumulative result of nearly 3 decades of research is that 'there is ample extant research supporting the efficacy of cognitive strategy training during reading as a means to enhance students' comprehension' (Baumann, 1992, p. 162)" (NRP, 4-40–41). Research therefore supports this "enthusiastic advocacy" of strategy instruction (NRP, 4-39).

This change in perspective from a passive to an active and purposeful endeavor has led researchers to demonstrate that strategy instruction "can help students understand what they read, remember what they read, and communicate with others about what they read" (PRF, 48). In other words, comprehension instruction can help in the "development of appropriate, active strategies to derive meaning from print" (No Child Left Behind, p. 203–205). According to the NRP report, "the idea behind explicit instruction of text comprehension is that comprehension can be improved by teaching students to use specific cognitive strategies or to reason" (NRP, 4-39).

Finally, we know historically that reading comprehension has always been valued. The NRP notes:

> Researchers and educators have long been interested in what we think about thinking, in how our knowledge develops, and in how what we know about how our own thought processes affect reading comprehension. The focus on what we know about cognition has led to the development of practical strategies for improving students' comprehension. (NRP, 4-41)

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[15] This advocacy is characterized, more recently, by the popularity of books such as *Mosaics of Thought* and *Strategies That Work*.

The NRP goes on to cite key historical figures such as Benjamin Franklin and key researchers such as Thorndike and Durkin among others as examples of educators long-time concern with the teaching of comprehension strategies (NRP, 4-40, 41).

We know, then, from theory, research, and historical interest that comprehension not only is important but also is perceived as needed knowledge to effectively reach children who are learning to read and write.

Implications for Practice

Comprehension, given its scope and importance, has implications for practice, specifically, in terms of curriculum, assessment, instruction, programs and materials, special populations, and professional development. Each of these areas will be addressed in light of what we know about comprehension.

Curriculum. To help children become strategic readers (i.e., purposeful and active readers), teachers need to know what children are expected to know and what children are expected to be able to do at different stages of literacy development. These tasks need to be reflected in local and state curricular documents as well as in the scope and sequence of a comprehensive reading program. The purpose of the section that follows is to list the curricular implications for comprehension, using the definition described above and the research base outlined in the NRP report and in the *Put Reading First* document.

Two ideas guide the definition of comprehension: (a) good readers are purposeful, and (b) good readers are active. These ideas will serve as the basis for considering the curricular implications of comprehension.

Good readers are purposeful. Implied in the statement that "good readers are purposeful" is the assumption that readers will demonstrate the ability to read for different purposes. Therefore, curricular documents need to reflect various purposes such as the following:

- Read to find out how to use something;
- Read to gather information;
- Read to satisfy a requirement; and
- Read for entertainment and pleasure. (NRP/PRF)

Knowledge of these purposes necessarily involves children being able to identify the purpose for reading and the implications that that purpose has for how they attend to print.

Good readers are active. Implied in the statement that "good readers are active" is the assumption that readers will "think actively" and "make sense of what they read" by engaging in "complicated processes" (PRF, 48). Specifically, a curricular document needs to include the following:

- Use experiences and knowledge of world;
- Use vocabulary and language structure;

- Use knowledge of reading strategies;
- Make sense of the text;
- Know how to get the most out of a text;
- Know when problems with understanding occur; and
- Know how to resolve problems as they occur. (NRP/PRF)

Six research-based reading strategies encourage the kind of active reading described above; these strategies have specific implications for the kinds of reading behaviors we expect to observe in children:

- **Monitoring comprehension**—"Students who are good at monitoring their comprehension know when they understand what they read and when they do not. They have strategies to 'fix up' problems in their understanding as the problems arise" (PRF, 49). These "fix up" strategies include

  - identify where the difficulty occurs;
  - identify what the difficulty is;
  - restate the difficult sentence or passage in the students' own words;
  - look back through the text; and
  - look forward in the text for information that might help the student to resolve the difficulty.

  Comprehension monitoring is a critical part of metacognition, which can be defined as "thinking about thinking" (e.g., clarify purpose, monitor understanding, adjust reading speed, "fix up" comprehension problems, check understanding after reading) (PRF, 49).

- **Using graphic and semantic organizers**[16]—"Regardless of the [type of organizer], graphic organizers can help readers focus on concepts and how they are related to other concepts" (PRF, 51). They can

  - help students focus on text structure as they read;
  - provide students with tools they can use to examine and visually present relationships in a text; and
  - help students write well-organized summaries of a text.

- **Answering questions**—"Questions appear to be effective for improving learning from reading" (PRF, 51) because they

[16] Graphic organizers are diagrams or pictorial devices such as maps, webs, graphs, charts, frames, and clusters; semantic organizers "look somewhat like a spider web" where "lines connect a central concept to a variety of related ideas and events" such as in a semantic web or map (PRF, 50).

- give students a purpose for reading;
- focus students' attention on what they are to learn;
- help students to think actively as they read;
- encourage students to monitor their comprehension; and
- help students to review content and relate what they have learned to what they already know.

Students can be taught to "look back in the text to find answers to questions that they cannot answer after the initial reading" or to understand "the relationships between questions and where the answers to those questions are found (e.g., text explicit questions, text implicit questions, and prior knowledge or experience-based questions)" (PRF, 51).

- **Generating questions**—"By generating questions, students become aware of whether they can answer the questions and if they understand what they are reading. Students learn to ask themselves questions that require them to integrate information from different segments of text" (PRF, 51).

- **Recognizing story structure**—"In story structure instruction, students learn to identify the categories of content (setting, initiating events, internal reactions, goals, attempts, and outcomes) and how this content is organized into a plot" (PRF, 52).

- **Summarizing**—"Summarizing requires students to determine what is important in what they are reading, to condense this information, and to put it into their own words" (PRF, 53). Summarizing helps students to

  - identify or generate main ideas;
  - connect the main or central ideas;
  - eliminate redundant and unnecessary information; and
  - remember what they read.

More detailed information about each of these strategies is provided in the NRP report (see NRP, 4-69–115). Although many of these strategies clearly provide guidance for instruction, they also provide information about what we expect students to know and be able to do. The NRP explains:

> The value of cognitive strategies in comprehension instruction is, first, their usefulness in the development of instructional procedures, and second, the learning of these procedures by students as an aid in their reading and learning, independent of the teacher. (NRP, 4-40)

In the context of curricular implications, therefore, these strategies have implications for specific learner outcomes, and when discussed in the context of instruction, they provide guidance to teachers for strategy instruction.

In summary, the definition of comprehension, has specific implications for curriculum. Namely, if comprehension is viewed as a purposeful and active process, then these processes or strategies are behaviors we expect to foster and observe in skilled readers. The NRP report specifies these research-based strategies (presented above) as ones that we expect students to acquire to foster comprehension.

Assessment. Many of the assessments used in the studies that the NRP included in its analysis typically required children to engage in general tasks that assess improvement in memory and comprehension or to apply their knowledge of specific comprehension strategies (e.g., the ability to monitor, to answer questions, to generate questions, to identify story structure, to identify main idea). These various conditions reflect the curricular implications (outlined above) that emphasize the importance of assessing not only children's knowledge but also their growth in knowledge of (a) specific comprehension strategies and (b) the application of these elements to more general memory and comprehension tasks. However, the NRP appears to caution readers:

> In evaluating the effectiveness of strategy instruction in the classroom, the primary focus must be not on the students' performance of the strategies themselves. The appropriate assessment is of the students' reading achievement and, in addition, other outcome measures such as how interested students are in reading and how satisfied teachers are with their instructional methods. (NRP, 4-125)

Therefore, one might conclude that the ultimate measure of comprehension is to focus on general reading achievement (and even motivation). Informal measures might be used to monitor children's progress in attaining specific comprehension strategies, but tools used for the purpose of measuring outcomes, screening, or monitoring progress might focus in a more general way on one's capacity for memory and comprehension.

According to the Reading First legislation and the *Secretary's Reading Leadership Academy* (U.S. DOE, 2002), a battery of assessment tools must include a combination of screening tools, diagnostic evaluation tools, progress monitoring tools, and outcome tools, and must meet the criteria for being "valid, reliable, and based on scientifically based reading research" (No Child Left Behind, p. 206). In addition, teachers will need to use informal tools, as informed by curricular documents and a comprehensive reading program consistent with SBRR, to inform classroom instruction. All of these assessment tools are required for children in grades 1 through 3 for the purpose of measuring comprehension. Given the complexity of New Hampshire's Reading First assessment plan, the reader is referred to the Overview of Assessments chart, which summarizes the assessments required for all five SBRR components (see Broad Implications of SBRR section).

First, a brief screening tool, used at the beginning of the year, is needed to identify children at risk for reading failure; included in this screening is a test of children's comprehension. The goal is not to exhaustively assess the various curricular implications of comprehension but to selectively assess the most critical areas that predict success in reading (i.e., the ability to read actively and purposefully). For this purpose, New Hampshire has chosen to use the Phonological Awareness Literacy Screening (PALS) or the Dynamic Indicators of Basic

Early Literacy, 6th Edition (DIBELS), both of which include a comprehension test. Examination of the technical information from the University of Virginia (see Appendix F) and University of Oregon (Appendix G) confirms that this comprehension test, as a screening tool for grades 1 through 3, meets the Reading First criteria for being reliable, valid, and scientifically based.

Second, for those children who are identified as being at risk for not learning to read or who appear to be having difficulty with comprehension (as determined by the screening tool), a diagnostic tool is used to identify specific areas to address for instruction. For this purpose, New Hampshire has selected the comprehension portion of the Wechsler Individual Achievement Test II (WIAT II). This test provides more detailed information about children's comprehension and can be used to guide classroom instruction and varying levels of intervention. Examination of the technical information from the University of Oregon confirms that this comprehension test, as a diagnostic tool for grades 1 through 3, meets the Reading First criteria for being reliable, valid, and scientifically based (see Appendix G).

Third, throughout the school year, children's progress in comprehension needs to be monitored. For this purpose, progress monitoring tools are used to ensure that all children are making gains. New Hampshire has selected the Dynamic Indicators of Basic Early Literacy Skills, 6th Edition (DIBELS), and specifically the Retell Fluency subtest, to monitor progress in comprehension. The progress monitoring tool will be used in a continuous, ongoing manner over the course of the year, particularly for children who have been identified as being at risk for reading failure. Schools will be expected to summarize the results of their findings and specify instructional implications in a report to local constituents and to the NH DOE. If children do not appear to be making progress, the diagnostic tool will be administered to target specific areas of concern for instruction. The DIBELS Administration and Scoring Guide explains that "[p]reliminary evidence indicates that the Retell Fluency measure correlates with measures of oral reading fluency about .59" (Good & Kaminski, 2002, p. 31). While oral reading fluency "provides one of the best measures of reading competence, including comprehension," the Retell Fluency subtest serves as a check to "identify children whose comprehension is not consistent with their fluency" and "to increase the face validity of the DORF" (Good & Kaminski, 2002, p. 30). Like the vocabulary subtest, New Hampshire finds the DIBELS Retell Fluency subtest to be an efficient tool for identifying potential problems in comprehension, which can be further specified with the diagnostic tool (as described above).

Fourth, for the purpose of program evaluation and examining overall student achievement, an outcome measure needs to be used to ensure pre- and post-test progress in comprehension. New Hampshire has selected the Stanford Achievement Test, 10th Edition (SAT-10) to be used at the beginning and end of the school year. The SAT-10 was identified by the University of Oregon as meeting the Reading First criteria of reliability, validity, and scientifically based (see Appendix G).

Finally, teachers will be expected to use informal tools or "classroom-based instructional reading assessments" (No Child Left Behind, p. 206) that are consistent with the curricular implications of comprehension (see curriculum section above) and with a comprehensive

reading program, to inform day-to-day instructional decisions. Specifically, these assessments "(1) [evaluate] children's learning based on systematic observations by teachers of children performing academic tasks that are part of their daily classroom experience; and (2) [are] used to improve instruction in reading, including classroom instruction" (No Child Left Behind, p. 206). The assumption is that a comprehensive reading program will guide teachers in their use of these informal tools and will assist teachers in monitoring the extent to which students acquire each of the research-based comprehension strategies outlined above.

In summary, the assessment of comprehension requires that teachers use a complete battery of tools for the purpose of screening, diagnosing, monitoring progress, and measuring outcomes. These tools measure a student's capacity for memory and comprehension in more general applications whereas classroom-based or informal tools need to be used to inform instruction with respect to children's acquisition of specific comprehension strategies.

Instruction. The purpose of the NRP report was to summarize the research base that supports the teaching of comprehension strategies. Specifically, the NRP report "presents a review of the scientific evidence on the instruction of comprehension of text in normal readers" (NRP, 4-39). To be considered for the scientific review of studies on comprehension, a study had to meet the NRP's criteria for inclusion (see NRP, 4-41–42). However, the NRP found an array of studies advocating 16 different categories of instruction that were intended to improve reading comprehension. Consequently,

> A formal meta-analysis was not possible because even the studies identified in the same instructional category used widely varying sets of methodologies and implementations. Therefore, the Panel found few research studies that met all the NRP criteria; however, to the extent possible, NRP criteria were employed in the analyses. (NRP, 4-42)

Therefore, experimental studies were used to draw conclusions with respect to effective instructional strategies, even though the number of studies within any one type of instruction was insufficient to constitute a meta-analysis. The NRP notes:

> Of the 16 categories of instruction, 7 appear to have a firm scientific basis for concluding that they improve comprehension in normal readers. The seven individual strategies that appear to be most effective and most promising for classroom instruction are (in alphabetical order) comprehension monitoring, cooperative learning, graphic and semantic organizers including story maps, question answering, question generation, and summarization. In addition, many of these strategies have also been effectively used in the category of "multiple strategy" where readers and teachers interact over texts. (NRP, 4-42)

Most of these strategies are described in more detail in the curriculum section as well as in the NRP report and PRF document. Cooperative learning and multiple-strategy instruction, which were identified by the NRP report as research-based strategies, are discussed in more

detail in this section because they tend to be associated more with instructional procedures rather than learner outcomes (see PRF, 54).

Two additional strategies were identified as having "reliable effects on improving memory for text" (NRP, 4-42); these include mental imagery and mnemonic (keyword) strategies. Several other strategies were identified as having "so few [studies] that an assessment of the scientific merit of a particular treatment could not be made" (NRP, 4-42); these include: curriculum-plus strategies, psycholinguistic, listening actively, teacher preparation, and vocabulary-comprehension relationship strategies (NRP, 4-42, 43). The latter two, in particular, were identified as holding "considerable promise for future study" (NRP, 4-42).

Finally, the NRP notes that "The use of instructional procedures that activate prior knowledge was found to be quite varied" (NRP, 4-42). The panel goes on to suggest that "the activation of prior knowledge may be obtained through other means such as question elaboration, question generation, or question answering as well as other forms of content area exposure such as teacher lectures, films, and discussion before reading" (NRP, 4-42).

In particular, the NRP concludes that explicit and formal instruction in these strategies is what makes a difference in students' reading achievement: "The general finding is that when readers are given cognitive strategy instruction, they make significant gains on measures of reading comprehension over students trained with conventional instruction procedures (Pressley et al., 1989; Rosenshine & Meister, 1994; Rosenshine, Meister, & Chapman, 1996)." (NRP, 4-40). The NRP goes on to explain:

> Readers normally acquire strategies for active comprehension informally. Comprehension strategies are specific procedures that guide students to become aware of how well they are comprehending as they attempt to read and write. Explicit or formal instruction on these strategies is believed to lead to improvement in text understanding and information use. (NRP, 4-40)

In other words, explicit instruction of reading comprehension skills and strategies can be highly effective in enhancing students' understanding of text. Although some readers can acquire some of these comprehension strategies informally, others can benefit greatly from more formal, direct instruction.

The NRP offers an explanation for why explicit instruction is effective:

> The idea behind explicit instruction of text comprehension is that comprehension can be improved by teaching students to use specific cognitive strategies to reason strategically when they encounter barriers to comprehension when reading. The goal of such training was the achievement of competent and self-regulated reading. (NRP, 4-39–40)

The NRP report adds:

> Instruction in comprehension strategies is carried out by a classroom teacher who demonstrates, models, or guides the reader on their acquisition and use. When these procedures have been acquired, the reader becomes independent of the teacher. Using them, the reader can effectively interact with the text without assistance. Readers who are not explicitly taught these procedures are unlikely to learn, develop, or use them spontaneously. (NRP, 4-40)

Therefore, the NRP not only identifies specific research-based strategies but also draws attention to the importance of explicit and formal instruction in the teaching of these strategies.

Specifically, the NRP recommends three primary research-based guidelines for teaching comprehension strategies. The NRP explains that cognitive strategy instruction typically consists of the following steps:

1. the *development of an awareness and understanding of the reader's own cognitive processes* that are amenable to instruction and learning;
2. a teacher *guiding the reader or modeling for the reader the actions* that the reader can take to enhance the comprehension processes used during reading; and
3. the *reader practicing those strategies with the teacher assisting* until the reader achieves a gradual internalization and independent mastery of those processes (Palinscar & Brown, 1984; Paris & Oka, 1986; Pressley et al., 1994). (NRP, 4-40, emphasis added)

The PRF document presents these research-based guidelines in a slightly different manner by indicating that effective cognitive strategy instruction is (a) explicit, or direct; (b) can be accomplished through cooperative learning; and (c) helps readers use comprehension strategies flexibly and in combination.[17]

- **"Effective comprehension strategy instruction is explicit, or direct" (PRF, 53) and typically includes the following steps**
    - Direct explanation—"The teacher explains to students why the strategy helps comprehension and when to apply the strategy" (PRF, 53).
    - Modeling—"The teacher models, or demonstrates, how to apply the strategy, usually by 'thinking aloud' while reading the text that the students are using" (PRF, 53).

[17] PRF uses two of the research-based comprehension strategies (i.e., cooperative learning and multiple strategy instruction) as instructional approaches rather than as research-based strategies to foster in students. Also, PRF emphasizes the importance of direct explanation in the initial stages of cognitive instruction and does not mention the first step identified by the NRP (i.e., developing awareness); perhaps PRF views the "developing awareness" stage as a comprehension strategy to be fostered (i.e., comprehension monitoring) rather than an instructional strategy.

- Guided practice—"The teacher guides and assists students as they learn how and when to apply the strategy" (PRF, 53).
- Application—"The teacher helps students practice the strategy until they can apply it independently" (PRF, 53).

The NRP report notes,

> Research shows that explicit teaching techniques are particularly effective for comprehension strategy instruction. In explicit instruction, teachers tell readers why and when they should use strategies, what strategies to use, and how to apply them. The steps of explicit instruction typically include direct explanation, teacher modeling ("thinking aloud"), guided practice, and application." (PRF, 53)[18]

- **"Effective comprehension strategy instruction can be accomplished through cooperative learning" (PRF, 54).**

> "Cooperative learning (and the closely related concept, collaborative learning) involves students working together as partners or in small groups on clearly defined tasks [taken directly from NRP, 4-71]. Cooperative learning instruction has been used successfully to teach comprehension strategies in content-area subjects [and for teaching across the curriculum; see also NRP 4-71]. Students work together to understand content-area texts, helping each other learn and apply comprehension strategies. Teachers help students learn to work in groups. Teachers also provide demonstrations of the comprehension strategies and monitor the progress of students" (PRF, 54).

The NRP report further notes:

> "Having peers instruct or interact over the use of reading strategies leads to an increase in the learning of the strategies, promotes intellectual discussion, and increasing reading comprehension. This procedure saves on teacher time and gives the students more control over their learning and social interaction with peers."(NRP, 4-71)

- **"Effective instruction helps readers use comprehension strategies flexibly and in combination" (PRF, 54).**

> "Reading … requires the coordinated and flexible use of several different kinds of strategies. Considerable success has been found in improving comprehension by instructing students on the use of more than one strategy during the course of reading. Skilled reading involves an ongoing adaptation of multiple cognitive processes. Becoming an independent, self-regulated,

[18] "Such instruction is consistent with socially mediated learning theory (Pressley & McCormick, 1995; Vygotsky, 1978)" (NRP, 4-47).

> thinking reader is a goal that can be achieved through instruction of text comprehension (Brown et al., 1996)" (NRP, 4-47).

The NRP report further adds:

> "One variant of multiple-strategy instruction is called 'reciprocal teaching.' The teacher first models (demonstrates through personal use) and then explains what a strategy is and when to use it [reference]. At first, the teacher guides the reader in applying and practicing strategies while reading a passage. Modeling includes not only examples but the teacher 'thinking aloud' to demonstrate the coordinated use of strategies. Gradually, the student begins to practice and implement each strategy independently. In explicit transactional approaches that use multiple strategies, the teacher will explain a strategy before modeling it in a passage [reference]" (NRP, 4-79).

Programs and materials. To teach comprehension strategies effectively, teachers need access to appropriate instructional programs and materials. Specifically, teachers need (a) a comprehensive reading program that prespecifies the ways in which teachers can foster the explicit teaching of comprehension strategies with appropriately leveled reading material at the independent and instructional level; and (b) supplemental and intervention programs, as well as materials such as appropriately leveled books or trade books for independent and instructional reading that cross a variety of genres, which allow a teacher to model, guide, and provide for independent practice in using comprehension strategies (PRF, 28–29).

Special populations. The NRP's report reviewed scientific evidence that examined the effects of comprehension instruction in "normal readers" (NRP, 4-39). Therefore, as noted above, the NRP report was able only to conclude that seven instructional strategies are used to improve comprehension in normal readers (NRP, 4-42). In addition, the panel explains that most of the studies reviewed were carried out in grades 3 through 6 (NRP, 4-51). Therefore, even though the NRP observed that "there was no relationship between grade level and the respective percentages of success in treatment" across grades kindergarten through 11 (NRP, 4-51), the NRP was able only to conclude that "instruction of comprehension appears to be effective on normal children in grades 3 through 6" (NRP). According to the panel, the preponderance of studies in this grade range simply "suggests that researchers taught readers who had achieved decoding and other basic reading skills before they were taught strategies" (NRP, 4-51).

The report does not provide any additional information with respect to other populations of children. In fact, the NRP indicates that, "Further evidence is needed on whether certain strategies are more appropriate for certain ages and abilities, what the important reader characteristics are that influence successful instruction of reading comprehension, and which strategies, in combination, are best for younger readers, poor or below-average readers, and for learning disabled and dyslexic readers" (NRP, 4-52). Therefore, relatively little is known about the effectiveness of comprehension instruction on varying populations of children.

Professional development. A review of the literature conducted by the NRP identified four studies that focused on the preparation of teachers for "conducting reading comprehension strategy instruction" and that met the NRP criteria for inclusion in their review of scientific studies. These selected studies indicate that "good teacher preparation can result in the delivery of instruction that leads to improvements in students' reading comprehension" (NRP, 4-120). The NRP notes, however, that "the variations among the four studies … raise questions about what the best approach to teaching teachers to do strategy instruction might be" (NRP, 4-120).

The NRP report notes that, "Strategic reading requires strategic teaching, which involves putting teachers in positions where their minds are the most valued educational resources" (NRP, 4-49; see also Duffy, 1993). Furthermore, the NRP report explains that, "the preparation of teachers to better equip students to develop and apply reading comprehension strategies to enhance understanding is intimately linked to students' achievement in this area" (NRP, summary, p. 13).

However, according to the NRP report, training teachers to teach comprehension strategies is not easy: "Close observation of inservice trained strategy teachers suggests that: 'Progress was not easily accomplished. It was a struggle.… Student responses … suggested incomplete conceptions or misconceptions about what it means to be strategic'(Duffy, 1993, p. 237)" (NRP, 4-49). Furthermore, "it is not easy for teachers or readers to develop readers' conceptions about what it means to be strategic. It takes time and ongoing monitoring of success to evolve readers into becoming good strategy users" (NRP, 4-49). Finally, the NRP notes: "Helping teachers [become good strategy teachers] will require a significant change in how teacher educators and staff developers work with teachers and what they count as important about learning to be a teacher.… [They must learn] how to be strategic themselves (Duffy, 1993, p. 244–45)" (NRP 4-49).

Summary of Comprehension

Comprehension, the ability to actively and purposefully make sense of text, was selected by the NRP as one of five SBRR components for its sound theoretical and research base as well as its popularity and has specific implications for practice—namely, curriculum, assessment, instruction, programs and materials, special populations, and professional development. Information that was obtained largely from the NRP report and that was outlined above provides the essential foundation for decisions the state has made for its Reading First plan and will provide the necessary guidance to schools that are eligible for Reading First eligible in developing their local plans.

Broad Implications of SBRR

In this section, we step back from the detailed analysis of five SBRR components and examine the broad implications that this scientific research base suggests collectively for carrying out the New Hampshire Reading First program.

Review

In the first part of this section (see Overview: The Development and Original Intent of SBRR), we outlined the reasons why SBRR is so central to the Reading First initiative. By examining the supporting research documents and presenting the terminology associated with the primary purpose of the Reading First program, we alerted readers to the various facets that help us to understand SBRR's importance. Basically, we demonstrated that SBRR is the central construct underlying the primary purpose of Reading First (i.e., every student reads at grade level no later than third grade) and, consequently, that SBRR has specific implications for all of the activities necessary to carry out the Reading First program (i.e., curriculum, assessment, instruction, programs, materials, professional development).

In the second part of this section (see Detailed Analysis of SBRR), we examined five essential components of reading instruction that are based on scientific research (and, hence, are more commonly referred to as the scientifically based reading research). This analysis alerted readers to the specific knowledge base they must use in carrying out the Reading First initiative and, particularly, to the information they must use to evaluate curricular documents, administer assessment tools (and select informal tools), select instructional strategies, select programs and materials, consider the needs of different children, and select professional development opportunities.

Now, in the third part of this section (Broader Implications of SBRR), we step back from the detailed analysis and consider the ramifications that five SBRR components present collectively for the New Hampshire Reading First program. Specifically, we identify the explicit expectations of Reading First at the state and local level, and we consider the potential challenges in carrying out an initiative based on this information. Finally, we consider the implications that SBRR has for other Reading First activities such as leadership, technical assistance, evaluation, and coordination.

Broad Implications of SBRR

Each of the practical implication categories addressed in the detailed analysis of SBRR will be revisited here to examine the broader implications of SBRR. They include curriculum, assessment, instructional strategies, programs and materials, special populations, and professional development. Within each category, we identify state and local activities that must be addressed to carry out the Reading First initiative. In addition, we identify potential "points of difficulty" that we anticipate will be obstacles in carrying out the Reading First program in the state of New Hampshire. Although we recognize that these "points of difficulty," or challenges, might be considered somewhat controversial to include in our Reading First application, we believe they present critical issues that must be addressed to

bridge the gap between where many educators in New Hampshire may see themselves and the direction that Reading First initiative is asking educators to move. Finally, we examine the implications that SBRR has for other Reading First activities such as leadership, technical assistance, evaluation, and coordination.

Curriculum. Clearly, each of five SBRR components has specific implications for curricular documents. That is, the NRP report identifies in general terms, based on the definition and theoretical rationale of each component, what children need to know and what children need to be able to do to acquire skill in each of five SBRR components, which, in turn, contribute to their development as readers. What are the expectations and potential challenges for state and local agencies when using this curricular knowledge in New Hampshire's Reading First program?

Expectations for Reading First. Although the curricular implications of SBRR will inform all activities (e.g., assessment, instructional strategies, programs and materials, special populations, professional development), state and local agencies must have a thorough understanding of what children need to know and what they need to be able to do across five SBRR components to engage in curriculum alignment. In the New Hampshire Reading First program, local agencies are expected to align their curricular documents with the curricular implications of the SBRR components and will be assisted in the process of engaging in curricular alignment through professional development and technical assistance.

Curriculum documents that have been aligned with SBRR serve an invaluable purpose of helping state and local educators to be clear about what children are expected to know and be able to do at each grade level. Moreover, they serve as a foundation for evaluating and selecting assessment tools, instructional strategies, and programs and materials as well as for meeting the needs of special populations and for providing professional development activities. For example, if a comprehensive program does not include key curricular components essential to SBRR but these components are stated in the curricular document, then local agencies have a responsibility to identify supplemental programs and materials that will assist them in the process of meeting these goals.

Challenges for Reading First. The curricular implications of SBRR present four primary challenges to carrying out New Hampshire's Reading First plan. First, the NRP report contains insufficient information to identify with specificity the knowledge base expected at each grade level (K–3). Debra Simmons and her colleagues have developed a scope and sequence chart based on an analysis of curricular documents from several schools (see Appendix B).[19] We believe this document serves an important role in considering the specific grade-level curricular implications of SBRR and moves us closer to addressing the legislative requirement for scientific research that informs "reading development, reading instruction, and reading difficulties" (No Child Left Behind, p. 205). We need to know what grade-specific skills are relevant as children develop as readers.

[19] Other curricular documents also may be useful to the state and local agencies, including the *Consumer's Guide* and recently developed state curricula (e.g., California's Language Arts Framework—see Moats, 1999) that are closely aligned with the curricular implications of SBRR components.

Second, on several occasions, Reading First presenters have noted that teachers should not be spending their time developing curriculum, and yet, our experience has shown that teachers develop a more thorough understanding of the curricular expectations when they are in some capacity involved in shaping curricular documents. We believe that efficient ways exist to involve teachers in this process during state professional development activities; some of these techniques have been used also by other states (e.g., Texas) to alert teachers to the gaps that exist in current curricular documents and to further develop their understanding of each of five SBRR components.

Third, curriculum alignment must be addressed at the state as well as the local level. Presently, the state language arts document (i.e., the New Hampshire's K–12 English Language Arts Framework) does not adequately or explicitly address all five SBRR components. Coordinating a statewide effort to bring the language arts framework in alignment with the Reading First initiative may present some challenges and is viewed as a critical activity in order to provide the necessary guidance to those schools with at-risk populations. It is imperative that individuals working on any revisions to this state document have a solid understanding of SBRR.

Finally, the five essential components of reading instruction are not the only components relevant to a quality reading program. The Reading First legislation, the documents summarizing the research (i.e., NRC, NRP, PRF), and the Reading First supporting documents (i.e., application, guidance, criteria) clearly emphasize five SBRR components as the key variables in helping children to read independently by the end of Grade 3. However, the research documents repeatedly illustrate the close and inseparable relationship that reading has with the other language arts, including writing, listening, and speaking. For example, when discussing the theoretical importance of alphabetics (i.e., phonemic awareness and phonics), the NRP talks about the importance of applying this knowledge to decoding and spelling, both of which involve not only reading but also writing. The NRP report also talks about the importance of oral language in fostering a child's ability to decode words, acquire vocabulary, and develop comprehension. In carrying out the Reading First program in New Hampshire, a state that traditionally has honored the integration of the language arts (e.g., New Hampshire's K–12 English Language Arts Framework), one of the challenges we face is helping teachers to see that we have not abandoned the other language arts in favor of an exclusive focus on reading. The Reading First initiative must maintain a focus on improving reading instruction while also demonstrating the critical role that the other language arts play in this process; this approach will lead to the inevitable question of whether it is appropriate to focus on topics such as spelling, writing, and oral language.

Assessment. The NRP report identifies measurements used in the scientific studies and issues that are relevant to the assessment of each component. This information provides state and local agencies with some, though limited, insights for how to go about selecting and using assessment tools. In addition, we have the benefit of University of Oregon's work and the specific guidance provided by the legislation and the *Secretary's Reading Leadership Academy* (U.S. DOE, 2002).

Expectations of Reading First. In the New Hampshire Reading First program, local agencies not only must use a preselected battery of valid and reliable assessment tools, including screening, diagnostic, progress monitoring, and outcome measures, but also must use informal, classroom-based tools. In the detailed analysis of SBRR, we describe the tools that have been selected for each of five SBRR components for grades K–3. In the following chart, these assessment tools are summarized according to content, purpose, and grade level.

(See Overview of New Hampshire Reading First Assessments chart on next page.)

Overview of New Hampshire Reading First Assessments

(The chart below indicates the tests that New Hampshire will require all schools to use to provide consistency when evaluating student achievement.)

	Grade K	Grade 1	Grade 2	Grade 3
Screening (administered by classroom teachers)				
PA	**PALS-K or DIBELS**	**PALS- 1-3 or DIBELS**	**NA**	**NA**
Phonics	**PALS-K or DIBELS** Winter/Spring	**PALS- 1-3 or DIBELS**	**PALS 1-3 or DIBELS** Fall Only	**NA**
Vocabulary	**DIBELS**	**DIBELS**	**DIBELS**	**DIBELS**
Fluency	**NA**	**PALS 1-3 or DIBELS**	**PALS 1-3 or DIBELS**	**PALS 1-3 or DIBELS**
Comprehension	**NA**	**PALS 1-3 or DIBELS** Spring Only	**PALS 1-3 or DIBELS**	**PALS 1-3 or DIBELS**
Diagnostic (administered by specialists in reading, speech and language, etc.)				
PA	**PAT**	**PAT**	**NA**	**NA**
Phonics	**PAT** Winter/Spring	**PAT**	**PAT** Fall Only	**NA**
Vocabulary	**EVT/PPVT**	**EVT/PPVT**	**EVT/PPVT**	**EVT/PPVT**
Fluency	**NA**	**TOWRE**	**TOWRE**	**TOWRE**
Comprehension	**NA**	**WIAT II** Comp. Only Spring Only	**WIAT II** Comp. Only	**WIAT II** Comp. only
Progress Monitoring (administered by classroom teachers)				
PA	**DIBELS**	**DIBELS**	**NA**	**NA**
Phonics	**DIBELS** Winter/Spring	**DIBELS**	**DIBELS** Fall Only	**NA**
Vocabulary	**DIBELS**	**DIBELS**	**DIBELS**	**DIBELS**
Fluency	**NA**	**DIBELS**	**DIBELS**	**DIBELS**
Comprehension	**NA**	**DIBELS** Spring Only	**DIBELS**	**DIBELS**
Outcome—Fall/Spring (unless noted); (administered by classroom teachers)				
PA	**PALS- K or DIBELS**	**PALS 1-3 or DIBELS**	**NA**	**NA**
Phonics	**SAT-10** Winter/Spring	**SAT-10**	**SAT-10** Fall Only	**NA**
Vocabulary	**SAT-10**	**SAT-10**	**SAT-10**	**SAT-10**
Fluency	**NA**	**TOWRE**	**TOWRE**	**TOWRE**
Comprehension	**NA**	**SAT-10** Spring Only	**SAT-10**	**SAT-10**

PPVT-3 (Peabody Picture Vocabulary Test)
SAT-10 (Stanford Achievement Test, 10th Edition)
PAT (Phonological Awareness Test)
PALS (Phonological Awareness Literacy Screening)
DIBELS (Dynamic Indicators of Basic Early Literacy Skills, 6th Edition)
TOWRE (Test of Word Reading Efficiency)
EVT (Expressive Vocabulary Test)
WIAT II (Wechsler Ind. Achievement Test II)

This chart summarizes the assessment tools that will be used by the New Hampshire Reading First program for the purposes of screening, progress monitoring, diagnosing, and measuring outcomes for each of five SBRR components across grades K–3. For the purposes of screening, the PALS or DIBELS will be used for phonemic awareness, phonics, fluency, and comprehension. In addition, the DIBELS (Word Use Fluency) will be used for screening vocabulary. For the purposes of progress monitoring, the DIBELS will be used for phonemic awareness (Initial Sound Fluency and Phoneme Segmentation Fluency), phonics (Letter Naming Fluency and Nonsense Word Fluency), fluency (DIBELS Oral Reading Fluency), vocabulary (Word Use Fluency), and comprehension (Retell Fluency). For the purposes of diagnostic testing, the PAT will be used for phonemic awareness and phonics, the EVT and PPVT will be used for vocabulary, the TOWRE will be used for fluency, and the WIAT II will be used for comprehension. Finally, for the purpose of measuring outcomes, the PALs or DIBELS will be used for phonemic awareness; the SAT-10, for phonics, vocabulary, and comprehension; and the TOWRE, for fluency.

The state will provide professional development to LEAs and schools that are eligible for Reading First, training that will explain the purpose of these tools and will demonstrate how to administer the tools, how to summarize and analyze the results, and how to use the results to make instructional decisions. In addition, the state will provide technical assistance to closely monitor the ongoing use of assessments in the schools.

Challenges for Reading First. The assessment implications of SBRR present three primary challenges to the carrying out of New Hampshire's Reading First plan. First, New Hampshire's Reading First battery of assessments presents a complex array of tools. In January of 2003, members of the R.E.A.D. team piloted a sampling of the tools to determine the "test burden" associated with the tools and the usefulness of the data to meet their respective purposes (e.g., Do the diagnostic tools provide adequate information to design instructional interventions?). If necessary, the state will revise the battery in consultation with the federal government.

Second, although the legislation requires that Reading First schools use classroom-based tools to inform instruction, the Reading First supporting documents and the NRP report provide limited information about what informal tools to use in the classroom. The assumption is that the school's comprehensive reading program will provide specific guidance about informal tools but that the state will provide professional development and technical assistance to guide schools in this area. These tools will need to be examined closely by the Reading First schools to ensure they are consistent with the principles of SBRR.

Finally, although the Reading First legislation requires a battery of assessments that focus on five essential components of reading instruction, the R.E.A.D. team anticipates that LEAs and schools will question how to assess other areas of language arts, especially those such as writing, spelling, and oral language that are integrally related to reading (as noted above). Again, the assumption is that a comprehensive reading program will incorporate assessments to address some of these areas but that the state will provide professional development and technical assistance to assist schools in supplementing the possible gaps in a program.

Instructional strategies. The NRP report clearly points to specific, research-based instructional strategies for each component. This knowledge base forms the foundation of the NRP report and the core of what is meant when we refer to SBRR. What are the expectations and potential challenges for state and local agencies that are associated with using this knowledge about instructional strategies in the New Hampshire Reading First program?

Expectations for Reading First. Across all five SBRR components, the NRP identified specific instructional strategies relevant to each component (e.g., using guided rereading to foster fluency). Because instructional implications vary according to the SBRR component, teachers need to examine these strategies carefully when designing professional development and instruction for the classroom. In addition, teachers need to demonstrate evidence of using two research-based instructional delivery systems across each SBRR component; these systems include (a) direct (i.e., explicit and systematic) instruction to teach the content knowledge associated with each SBRR component and (b) application instruction (or practice mastery[20]) that requires application of this content knowledge to reading and writing through modeled, guided, and independent practice opportunities.

The information provided by the NRP report provides state and local agencies with specific guidance for how to go about identifying and using instructional strategies as well as for evaluating the extent to which these strategies are addressed in a comprehensive reading program. Moreover, this information guides the state and LEAs in their efforts to monitor program features to determine the extent to which these recommendations are carried out. The state will provide professional development and technical assistance to help schools meet these expectations.

Challenges for Reading First. The implications of SBRR for instructional strategies present three primary challenges to the carrying out of the New Hampshire Reading First program. First, the teaching of each SBRR in isolation or as separate subjects is not the intended recommendation of NRP, although criticisms of Reading First often imply that this approach is the intent. Instead, the NRP repeatedly emphasizes the importance of teaching five SBRR components in the context of a comprehensive (or, as NRP referred to it, a balanced) literacy program.

Second, the Reading First guidance recommends different levels of instructional intervention, but the NRP report and the Reading First supporting documents provide little guidance with respect to research-based instructional strategies (and programs) that support these different levels of intervention. The state plans to consult with the federal government about how to effectively address this gap in knowledge.

Third, New Hampshire has long advocated literature-based, writing process, whole language, Reading Recovery, and balanced literacy programs, including, for example, programs such as the Literacy Collaborative, Four Blocks, and Heinemann's First Steps. All of these balanced literacy programs emphasize the importance of an instructional delivery system that focuses

[20] Debra Simmons coined this term in the context of professional development; however, this term also has relevance for instruction provided to children in the classroom (Effective Characteristics of Professional Development Workshop in Chicago, IL, December, 2002).

on practice mastery (as described above)—that is, applying SBRR in the context of reading and writing by providing modeled, guided, and independent practice. However, what characterizes many of these programs (or the interpretation of these programs to practice) is the incidental teaching of the SBRR components rather than the explicit and systematic teaching of SBRR components. Although many children will acquire the knowledge associated with five SBRR components, Reading First advocates argue that children who are not making progress in schools and, furthermore, who are identified as being at risk are more likely to need explicit systematic instruction in the SBRR components. The Reading First program is warranted in calling for a change, particularly for those children who are identified as being at risk for not reading independently by the end of Grade 3. Instead of abandoning all that we have learned (especially recently) from many of these innovative literacy programs, the Reading First program appears to implicitly advocate the use of practice-mastery strategies along with explicit instruction but advocates this approach within the context of a comprehensive reading program to ensure systematic coverage and effective, research-based strategies. Teachers will need assistance through professional development and technical assistance for understanding this emphasis in the Reading First program and to ensure that the comprehensive reading program becomes the core rather than an add-on component to what may already be an eclectic program.

Finally, the NRP clearly states that each SBRR component warrants further research to further refine our understanding of the features that best lend themselves to the teaching of these components; however, common among all five components was the importance of motivation in fostering the effective learning and teaching of these components. In other words, students and teachers need to be motivated by the content and process of the SBRR components to ensure effective instructional contexts.

Programs and materials. The NRP report and the PRF document provide some guidance with respect to the kinds of materials that would best support the teaching of five SBRR components. Of particular relevance to this category is the instructional implication (see above) that five SBRR components need to be taught systematically, consistently, and explicitly; in other words, five SBRR components must be part of a well-designed, sequenced program and not be left to incidental teaching.

Expectations of Reading First. The Reading First legislation and supporting documents make it clear that schools are expected to use a comprehensive reading program to ensure that five essential components of reading instruction are not left to chance. This approach will involve evaluating the school's current program and other recently published programs to select the program that is most appropriately aligned with SBRR and best meets the needs of the children (and teachers). Reading First expects the comprehensive program to become the "backbone" of reading instruction rather than something that is used as a supplement to an already existing program or materials. For this reason, a comprehensive reading program in addition to assessment data will determine what needs to be taught and how this knowledge is to be effectively delivered to ensure that the essential components of reading instruction (i.e., SBRR) are addressed.

However, Reading First recognizes that a comprehensive program will have gaps. Schools will be expected to identify these gaps as well as to evaluate and select supplemental materials and programs to address these gaps. For example, fluency is said to be an area that even recently published programs do not adequately address; therefore, supplemental programs, as well as materials, such big books, charts, independent reading materials, taped books, Reader's Theatre scripts, among other materials will need to be used to foster fluency skills in the classroom. Consequently, schools will need to evaluate and select a rich array of literacy materials in the classroom and in the school library to not only address gaps but also further enhance the delivery of instruction recommended by a comprehensive reading program. Finally, schools will be expected to supplement the comprehensive program with intervention programs, the need for which will be determined by diagnostic data; these programs need to be consistent with SBRR.

To meet all of these expectations, the state will provide professional development and technical assistance. New Hampshire will use the process adopted by Oregon, Colorado, Illinois, and Washington for evaluating comprehensive reading programs, which involves using an adapted version of the *Consumer's Guide for Evaluating Reading Programs*. This evaluation process will begin at the state level and then continue to the local level. In addition, schools will need professional development and technical assistance in selecting supplemental materials and programs. Finally, teachers need to understand the varying difficulties of materials (i.e., independent, instructional, and frustration levels) to evaluate, select, and use instructional materials and programs that effectively match children's needs.

Challenges for Reading First. The implications of SBRR for programs and materials presents four primary challenges to the carrying out of the New Hampshire Reading First program. First, the expectation to use a comprehensive reading program will undoubtedly generate some resistance in this "Live Free or Die" state where many schools have had considerable local autonomy with respect to the delivery of literacy instruction. It will be imperative that the state assist schools in understanding the critical value and importance of this kind of program as the backbone rather than as a source of supplemental materials. A common misunderstanding associated with Reading First is the perception that teachers will need to abandon quality literature and the varied resources on which they have come to rely; instead, Reading First advocates the use of these materials in a way that supports the research-based instructional strategies identified by the NRP report.[21]

Second, the evaluation, selection, and use of a comprehensive program will prove to be a challenge and will require ongoing, effective professional development and technical assistance to ensure that this process is carried out effectively. Again, New Hampshire will simulate the efforts of Oregon, Illinois, Colorado, and Washington in providing evaluation guidelines to LEAs and schools for this purpose.

Third, the selection of materials to supplement a comprehensive program will require assistance, especially in terms of helping schools to understand how to use the materials to

[21] A quick review of the photographs in the *Put Reading First* document should allay educators' worries that Reading First is calling for an end to the wonderfully rich array of literacy materials; these photographs clearly show that these materials can and do support research-based instructional practices.

encourage research-based instructional practices. In particular, schools will need professional development in determining the varying difficulties of materials (i.e., independent, instructional, and frustration levels). Finally, given the limited information available, state and local agencies will need assistance in selecting appropriate, research-based intervention programs to meet children's needs.

Special populations. The NRP was able to identify some research that informs our understanding of SBRR with different populations of children. For example, some of the research-based instructional practices are better suited for kindergarten and first grade children; other practices were identified as being more effective with children who are progressing normally than with children who are learning disabled. Finally, certain research-based practices were shown to vary in their effectiveness depending on other factors such as socioeconomic status and whether children speak more than one language.

However, according to the NRP report, the available research related to the effectiveness of teaching five SBRR components with different populations varied considerably with each component. Often, information was insufficient to allow any significant conclusions to be made for different populations of children. For this reason, state and local agencies need to be aware of the limitations of this knowledge base and need to use what information is available with caution. The state will request additional assistance from the federal government with respect to this topic, which has important implications for providing appropriate, research-based intervention programs.

Professional development. The NRP report provides limited guidance with respect to the implications of SBRR for professional development. In general, the report emphasized the importance of teachers (a) acquiring a knowledge base informed by the scientifically based reading research (i.e., learning the content associated with a component) and (b) engaging in practice mastery (i.e., learning how to teach the content associated with the component). Although relatively little is known from the NRP report, other resources such as *Teaching Reading* Is *a Rocket Science* (Moats, 1999) and the National Staff Development Association's guidelines contribute to our understanding of effective professional development.

Expectations of Reading First. State and local agencies will be expected to design professional development opportunities that provide a knowledge base informed by SBRR, including an instructional model that emphasizes direct, systematic instruction and practice mastery. The state will be expected to hire professional development providers who have a deep understanding of SBRR as well as of adult learning and effective professional development practices.

Challenge for Reading First. The implications of SBRR for professional development present two primary challenges to carrying out the New Hampshire Reading First program. First, although the state-level professional development is fairly directive, local-level professional development will need to be closely monitored to ensure that it is aligned with SBRR and is based on needs observed in the classroom.

Second, the Reading First legislation includes *reading development*, *reading instruction*, and *reading difficulties* as part of the scientifically based reading research. However, the primary focus of Reading First appears to emphasize reading instruction. Moats (2002), in her presentation on professional development at the Secretary's Reading Leadership Academy, includes reading development and reading difficulties as important content for professional development; in addition, the NRC report certainly emphasizes these topics. In many ways, this knowledge base is embedded in each of the components but simply is not articulated (e.g., What can we realistically expect kindergartners and first graders to do with respect to phonemic awareness and phonics knowledge? To what extent are instructional strategies useful in assisting children who represent different populations?). We are assuming that this knowledge base provides a critical foundation for evaluating the appropriateness of instructional materials and programs, for analyzing assessment data and identifying children who are at risk for not reading independently by the end of Grade 3, and for making instructional decisions at various levels of intervention. Therefore, we have chosen to incorporate this knowledge base in addition to the scientifically based reading research informing reading instruction.

Leadership, Technical Assistance, Coordination, and Evaluation

The NRP report does not explicitly address the implications that SBRR has for leadership, technical assistance, coordination, and evaluation. However, the implications exist, and they are critical to successfully carrying out Reading First. Leaders—those providing technical assistance, those assuming responsibility for other literacy related initiatives, and evaluators—must have a deep understanding of SBRR to lead, assist, coordinate, and evaluate the Reading First initiative. Without the necessary knowledge base, these individuals are likely to make decisions or recommendations that are inconsistent with SBRR and that, consequently, work against the purposes of Reading First. For example, a principal who observes and evaluates a classroom teacher must have a thorough understanding of SBRR to guide the teacher appropriately.

Summary of Broad Implications of SBRR

In this section, we examined the broader implications that SBRR has for carrying out the New Hampshire's Reading First program. We identified the general findings reported by the NRP, the specific expectations for state and local agencies, and the potential challenges to carrying out Reading First.

Summary: State Outline and Rationale for SBRR

The purpose of the State Outline and Rationale for SBRR was threefold. First, we examined the overall rationale for SBRR to understand its prominence in Reading First. Next, we conducted a more detailed analysis of SBRR to understand each of five essential components of reading and the implications that these components have for curriculum, assessment, instructional strategies, programs and materials, and professional development. Finally, we examined the broad implications of SBRR for the carrying out of Reading First in New Hampshire by outlining the specific expectations and challenges facing state and local agencies.

State Definition of Subgrant Eligibility

The purpose of this section is to define the eligibility criteria for Reading First LEAs. Specifically, the eligibility criteria must (a) result in an applicant pool that is sufficiently targeted to ensure that LEAs will receive adequate funding and support yet broad enough to ensure that only applicants of the highest quality will be funded and (b) ensure geographic diversity of eligible LEAs, including both rural and urban areas. In addition to defining the eligibility criteria, the purpose of this section is to identify by name which LEAs in the state meet the eligibility definition and to provide the total number of those LEAs as well as what percentage of all LEAs this total represents.

Subgrant Eligibility Criteria

New Hampshire used the following process and criteria to identify eligible Reading First LEAs. First, the Title I state coordinator and the REA/Reading First coordinator identified a list of New Hampshire LEAs in order of the highest number and percentage of students scoring in the novice range (i.e., below grade level) on the third grade language arts section of the 2002 NHEIAP. The top 15% of the districts with the highest number or highest percentage of students in the novice range made up the first pool of LEAs.

Second, LEAs were identified that met at least one of the following three criteria: (a) geographic area that includes an empowerment or enterprise zone; (b) schools identified as Title I schools in need of improvement; or (c) highest numbers or percentages of children who are counted for allocations under Title I, Part A, using 1999 poverty census data as the threshold (i.e., greater than 200 students in poverty or 10% poverty). Although 10% percent is used as the threshold for eligibility, a competitive priority will be given to those LEAs that can demonstrate a higher rate of poverty in their Reading First application.

Using these criteria, a list of eligible Reading First LEAs was identified (see end of this section). A final total of 25 LEAs, which represent 16% of the total LEAs in the state, was identified based on the LEAs in the first pool who also met at least one of the other criteria. These LEAs represent both urban (U) and rural (R) populations and are located in each of five regions of New Hampshire: North Country (3 LEAs), Lakes Region (8 LEAs), Southwest (5 LEAs), Southcentral (4 LEAs), and Southeast (5 LEAs).[22] In addition to determining the eligible LEAs, the state has reviewed the data for eligible Reading First schools. The state will make this list available to eligible LEAs so they can make a final determination of eligible schools that will apply for Reading First funds (see Appendix C).

This final list of eligible Reading First LEAs results in an applicant pool that is sufficiently targeted to ensure that LEAs will receive adequate funding and support yet broad enough to ensure that only applicants of the highest quality will be funded. In addition, as indicated

[22] The urban and rural designations were identified using the U.S. Census Bureau (2000) table entitled "Populations for the Counties and 50 Largest Cities and Towns in New Hampshire." The five regions of New Hampshire were identified by the NH DOE as a way to divide the state according to school districts for regional meetings (e.g., superintendent meetings).

above, the final list ensures geographic diversity of eligible LEAs, which represent both rural and urban areas.

List of Eligible Reading First LEAs

A list of New Hampshire's Reading First eligible LEAs, along with their urban (U) or rural (R) designation, follows:

1. Berlin (R)
2. Campton (R)
3. Claremont (R)
4. Contoocook Valley (R)
5. Derry (U)
6. Dover (U)
7. Errol (R)
8. Fall Mountain Regional (R)
9. Farmington (R)
10. Franklin (R)
11. Governor Wentworth Regional (R)
12. Keene (U)
13. Laconia (U)
14. Manchester (U)
15. Milton (R)
16. Nashua (U)
17. Newfound Area (R)
18. Rochester (U)
19. Rumney (R)
20. Salem (U)
21. Seabrook (R)
22. Stratford (R)
23. Warren (R)
24. Wentworth (R)
25. Winchester (R)

Selection Criteria for Awarding Subgrants

The purpose of this section is to address the selection criteria for awarding subgrants to LEAs. Specifically, the selection criteria outline how the following areas will be evaluated: (a) schools to be served, (b) instructional assessments, (c) instructional strategies and programs, (d) instructional materials, (e) instructional leadership, (f) district- and school-based professional development, (g) district-based technical assistance, (h) evaluation strategies, (i) access to print materials, (j) additional criteria, and (k) competitive priorities. A Request for Proposals for eligible LEAs, in draft form, is available in the Appendix section of this document (see Appendix H) and addresses the selection criteria for awarding subgrants; the draft includes a scoring rubric that will be used for reviewing and selecting subgrant awardees.

Process for Awarding Subgrants

The purpose of this section is to describe the procedures for notifying all eligible LEAs in the state about the availability of competitive Reading First subgrants as well as application procedures and requirements. Specifically, this section describes (a) how the subgrant selection process will work, including the number and size of anticipated subgrants; (b) a time line for the subgrant process, including a plan for dissemination of information to eligible LEAs as well as preapplication workshops and meetings for eligible LEAs; and (c) a description of the review process, including qualifications of reviewers of LEA Reading First applications.

Subgrant Selection Process

Subgrants will be evaluated using the scoring rubric included in the Request for Proposals for LEAs (see Appendix H). Depending on the quality of the proposals, from ten to fourteen awards may be made statewide with each award ranging from $75,000 to $250,000, depending on the size of the school and the program developed in the proposal. At a minimum, no district will receive less than its proportionate share of Title I, Part A, funds.

Time Line for Subgrant Process

The following time line includes New Hampshire's plan for dissemination of information to eligible LEAs as well as preapplication workshops and meetings for eligible LEAs.

1. June 2003—Notification of eligible Reading First districts
2. September to November 2003—Pre-application workshops
3. November 2003—Final draft of RFP given to eligible LEAs and schools
4. November 2003—Question and answer session on the RFP
5. January 2004—NH DOE selects and trains readers for the proposal review
6. February 2004—Reading First proposals due to NH DOE
7. February 2004—Proposal review and possible site visits
8. March 2004—Reading First awards

Review Process for Subgrants

Subgrants will be reviewed by highly qualified reviewers who will be trained to read the subgrant applications. Ten grant reviewers will be selected primarily from three separate groups including the Department of Education, the Reading Leadership Team, and the R.E.A.D team. The qualifications and expectations of reviewers of the LEA Reading First applications include the following:

- Leadership position in the educational community at the state or local level
- Involvement in or a commitment to literacy-related projects
- Attendance at required grant review trainings, including overview of Reading First application, scoring rubric, and sample reviews

- Deep understanding of Reading First expectations, including the Reading First law, regulations, and SBRR
- Participation in interrater reliability check with a team of grant reviewers
- Participation in grant review meetings

The review process for identifying and awarding subgrants will include the following stages:

- Solicit and identify highly qualified reviewers.
- Organize and plan for grant review trainings.
- Check for understanding of Reading First expectations, including SBRR.
- Check the consistency with which reviewers judge sample subgrants.
- Distribute to teams of reviewers subgrant applications for review.
- Schedule grant review meetings to monitor progress of teams.
- Conduct possible site visits for finalists.
- Make final determination of subgrant awards.

State Professional Development Plan

The purpose of this section is to describe the New Hampshire Reading First program's state professional development plan. Specifically, the state's plan identifies the following: (a) the goals of the plan, (b) the rationale, (c) the critical features of a professional development plan, (d) an overview of the plan, and (e) a description of the plan's activities. The state's plan will address, in particular, how educators statewide will receive professional development in the essential components of reading instruction, using scientifically based instructional strategies, programs and materials, as well as screening, diagnostic, and classroom-based instructional assessments.

Goals of the State Professional Development Plan

The goal of New Hampshire's state professional development plan is to provide well-designed, systematic training for New Hampshire teachers in grades K–3, including Title I, special education, and ELL teachers as well as school administrators, to enable and ensure the consistent delivery of reading programs grounded in SBRR and to improve student reading achievement (Reading First Guidance; Moats, 2002). The state's plan is designed to accomplish these goals by cultivating expertise within the school, helping all teachers become experts in early literacy instruction (i.e., "Leave no teacher behind"), and by developing future coaches and mentors to sustain the Reading First effort (Moats, 2002, p. 2). In addition, the state's plan will build capacity and cultivate expertise among leaders, including policymakers, to sustain the Reading First initiative at the state and local levels. The summary of these goals follows:

- Improve student achievement
- Enable and ensure consistent delivery of reading programs grounded in SBRR
- Cultivate expertise within the school by helping teachers to become experts
- Develop future coaches and mentors to sustain the Reading First initiative at the local level
- Build capacity and expertise at the leadership level to sustain Reading First initiative at the state level

Rationale for the State Professional Development Plan

The state professional development plan (and hence its goals) is critical to the success of the Reading First initiative for several reasons. First, as Moats (1999, 2002) describes, "teaching reading *is* rocket science." To effectively reach children who are at risk for not learning to read by the end of Grade 3, all educators who influence the educational process for a young child need to understand the research base that supports effective instructional practices; this task is not an easy one, and high-quality professional development programs can support all educators in this process. Second, given the conflicting ideas about reading instruction that have been communicated in workshops, conferences, and professional readings, teachers need the opportunity to examine these ideas and to confront and resolve discrepancies among these ideas (Moats, 2002). Third, if teachers have not received extensive instruction in reading beyond the preservice level, then their understanding is likely to be dated, limited, or

insufficient; therefore, professional development must serve the purpose of bringing these teachers up to speed. Finally, all teachers of children in kindergarten through Grade 3 need to work together to ensure consistency and integrity across the grade levels by maintaining a common set of goals, concepts, and instructional strategies. Again, high-quality, systematic professional development that is organized at the state and local levels can help to foster this consistency and ensure that all of the above-described needs are met. A summary of this rationale follows:

- All educators who influence the educational process for a young child need to understand the research base that supports effective instructional practices;
- Teachers need the opportunity to examine these conflicting ideas and confront and resolve discrepancies among these ideas;
- Professional development must bring teachers up to speed; and
- All teachers of children in kindergarten through Grade 3 need to work together to ensure consistency.

Critical Features of State Professional Development Plan

To accomplish these goals, New Hampshire's state professional development plan uses a multifaceted approach to effectively reach teachers, administrators, and state leaders in an ongoing manner. This approach addresses the key features that are characteristic of a well-designed professional development program, as identified by researchers and national organizations, including (a) a supportive *context* with strong leadership, (b) strong *content* that is grounded in research and that includes all components of reading instruction, and (c) an effective *process* through which to carry out the plan (Moats, 2002; see also NSDC, 1995).

The purpose of the sections that follow is twofold: first, to demonstrate how the New Hampshire state professional development plan addresses each of the features critical to a professional development program (i.e., context, content, and process); and second, to provide an overview and detailed description of the New Hampshire state professional development plan and its components. Because New Hampshire's state professional development plan involves using a complex network of components to effectively reach local and state constituencies in a comprehensive manner, readers might find it helpful to first review the sections titled Overview of the Plan and the Description of the Plan's Components.

The Context

The context for the state's professional development plan ensures that the necessary support structures, including leadership, are in place to sustain the Reading First initiative. The context for New Hampshire's state professional development plan includes the following features: (a) everyone is involved, (b) expectations are consistent, (c) time and resources are sufficient to get results, and (d) teachers learn from one another and from outside experts (Moats, 2002).

Everyone is involved. New Hampshire's state professional development plan requires LEAs to include "all school personnel who support reading instruction" in grades K through 3 (Moats, 2002, p. 8), which includes classroom teachers, administrators, special service providers, paraprofessionals, and tutors. This targeted audience will be required to attend Summer Reading Academies and to participate in ongoing, follow-up support provided during the school year. All participants will be expected to acquire a common knowledge base (i.e., the content of the professional development program) and the specific implications that this knowledge base has for their particular grade level or area of expertise (e.g., Title I, special education, ELL, paraprofessionals, tutors, administrators).

LEAs will be expected to demonstrate in their proposal that all relevant personnel (e.g., Title I, special education, ELL, paraprofessionals, tutors, administrators) are participating in the Reading First initiative and, if they are not, provide a justification for why certain personnel have not been included. In addition, LEAs will be required to demonstrate specific efforts to communicate and work with parents and board members to ensure their involvement in the support of classroom reading instruction. In addition, New Hampshire's plan involves professional development at the leadership level to ensure that various stakeholders, especially leaders and others who are responsible for literacy-related projects relevant to K–3 are informed and in communication with one another.

Expectations are consistent. In New Hampshire's state professional development plan, most of the professional development delivered to LEAs will be developed at the state level to ensure that the message with respect to SBRR is consistently communicated across all of the Reading First schools. This message focuses on six points:

- The state's plan will present a consistent view of the scientifically based reading research to all Reading First schools through all professional development activities but, most critically, through the initial grant-writing process and through the initial summer academies.
- The state's plan requires all Reading First schools to update their language arts curriculum so they reflect the knowledge base communicated by the SBRR components; in addition, the state's plan involves working with state-level officials to revise the state standards and frameworks for the same reason.
- The state's plan requires state and local agencies to demonstrate how the revised curricular frameworks are aligned with state and local assessment program, including Reading First assessment expectations.
- The state's plan requires LEAs to demonstrate in very specific ways how their reading program (i.e., all instructional practices, including materials) supports SBRR (both on paper and in practice).
- The state's plan requires local agencies to work with state professional development providers who will provide on-site training and support.
- The state's plan requires at the state and local levels to demonstrate how they will coordinate other literacy-related initiatives (e.g., Best Schools, CSRD, Distinguished Educators, REA, Title I, Title II). For instance, at the state level, the Reading First plan includes specific goals for establishing an early literacy consortium or panel through which all literacy initiatives at the state level are

channeled to ensure consistent understanding of and fidelity to SBRR and communication among initiatives.

Time and resources are sufficient to get results. Moats (2002) argues that teachers need time and resources to learn and develop expertise in "each [SBRR] concept and teaching routine necessary to implement the comprehensive program" (p. 10). Consistent with research on teacher change (e.g., Fullan, 1991), Moats argues that teachers are often overwhelmed by new initiatives and need time to think about, read, collaborate on, and carry out new practices before they are fully committed to a change effort. Moats notes that "a novice teacher can get good results in one year of mentoring and coaching, but deeper understanding of all the pieces of the reading puzzle takes longer, usually two to three years" (p. 10). Moats argues that providing sufficient time and resources often means that teachers are provided with high-quality and varied experiences in an ongoing manner to support this change process. Similarly, at the leadership level, reading specialists, Title I teachers, principals, superintendents, Department of Education personnel, among others need the opportunity to revisit the expectations of NCLB and, specifically, the expectations of Reading First and its emphasis on SBRR to clarify misunderstandings and further enhance the knowledge base and its implication for practice.

The New Hampshire state professional development plan ensures that Reading First schools have sufficient time and resources to "get results" by putting into place the following expectations:

- The state plan will involve key leaders in professional development (e.g., leadership institutes) from across the state to educate leaders about SBRR and to build capacity and support for the Reading First initiative in the state.
- The state plan requires that LEA grant writers (and their teams) and reviewers engage in professional development to acquire a basic understanding of SBRR and its implications for program development. In addition, grant writers are required to work with the targeted personnel for Reading First (as described above) to develop the grant. Therefore, this first professional development opportunity provides the first layer for building understanding at the local level.
- The state plan requires local agencies to demonstrate how they will devote time and resources to Reading First in light of other competing projects.
- The state plan requires targeted personnel from schools that have been awarded the Reading First grant to attend annual, intensive summer academies. These academies will focus in greater detail on the core SBRR knowledge and will examine the specific implications this research base has for each grade level, each area of specialty (e.g., Title I, special education, ELL, paraprofessionals, tutors, administrators), or both.
- The state plan requires participating LEAs to engage in follow-up support opportunities with Professional development providers, including grade-level team meetings, staff development workshops and courses, mentoring and coaching, observations and demonstration lessons, and technical support, including regular communications with the state to monitor program progress.

- The state plan requires the state to provide outreach workshops to noneligible Reading First schools to reach additional pockets of at-risk populations.

All of these expectations are intended to provide sufficient time and resources to develop capacity and expertise at the state and local levels.

Teachers learn from one another and from outside experts. Moats (2002) argues that teachers need to learn from one another and from outside experts in the following ways: (a) build expertise with peers, coaches, mentors; (b) learn in a context of sharing and mutual support and ongoing communication; and (c) use outside experts for courses, conferences, and consultation (p. 11). In addition, the New Hampshire plan argues that state leaders also need to engage in the same opportunities to sustain and build capacity.

Specifically, the state plan intends to make it possible for teachers and leaders to learn from one another and from outside experts (a) by participating in the development of the Reading First grant, (b) by participating as a team in the Summer Reading Academies, (c) by providing support to one another during monthly team meetings, on-site visits, and training with the professional development provider, (d) by building capacity to coach and mentor one another through scheduled observations and demonstration lessons, (e) by participating in locally determined professional development activities that are consistent with the goals of SBRR and then sharing this knowledge with colleagues, and (f) by sharing their growing knowledge and expertise with other educators at future Summer Reading Academies.

At the state level, leaders (a) will have opportunities to participate in annual leadership institutes;(b) will be provided with regular updates about the Reading First initiative (where input will be solicited); (c) will have the opportunity to participate in the research study group, benefit from this group, or both; and (d) will be invited to special professional development events provided by national experts. Leaders at the local level will be expected to participate in professional development that fosters a deep understanding of SBRR and its application to practice.

All of these efforts at the local and state levels will make it possible for teachers and leaders to learn from one another and from outside experts.

The Content

For New Hampshire educators, including leaders and teachers, to fully understand the scientifically based reading research, they need a comprehensive content base that covers more than five components outlined by the National Reading Panel. Educators need to understand the context in which these five components fit and they need to understand the relationship between these components. In addition, they need to understand elements critical to literacy development (e.g., oral language, letter knowledge, spelling, writing, motivation) that are referenced in the National Reading Panel report but not cited explicitly as critical components. Therefore, the content for New Hampshire's state professional development plan will teach leaders and teachers about the following topics (adapted from Moats, 2002):

- The foundation concepts for understanding reading, including
    - How the essential components of reading are related
    - How children learn to read
    - Why some children fail to learn to read well
    - How written English is structured
- The process of fostering oral language development in the classroom
- Essential components of instruction (SBRR), including
    - Phonemic awareness
    - Phonics, including letter knowledge, word study, spelling
    - Fluency
    - Vocabulary
    - Comprehension, including written expression
- Research-based instructional delivery model
- Classroom-based and school-based assessment practices for screening, diagnosing, monitoring progress of, and measuring student learning outcomes
- The process to create a literate environment (i.e., motivation to read, opportunities to read, availability of reading materials appropriately matched to readers)
- Management and organization (i.e., diverse learners, grouping strategies, behavior management, daily routines and schedules, progress monitoring, organization of room)

The Process

To ensure that New Hampshire educators who are involved in the Reading First initiative effectively learn the content presented at the various professional development events, those planning the delivery of the content (i.e., the process) need to carefully design it around research-based strategies for professional development. According to Moats (2002), three key factors need to be addressed when designing professional development experiences: (a) adults learn in stages, (b) a full range of varied experiences must be provided, and (c) focus must be on student achievement.[23] These factors are consistent with the National Staff Development Council's (1995) *Standards for Staff Development: Elementary School Level*.

Adults learn in stages. According to Moats (2002), adult learners, like children, "need to inquire, reflect, experiment with, and evaluate the results of new ideas and practices" (p. 26). Specifically, this statement means that professional development learning needs to involve the following steps:

- Understand the concept or routine
- Observe a model in action
- Practice—in a safe context—one step at a time with guidance and support
- Try out the behavior with support from an experienced expert
- Apply independently
- Evaluate and adjust, refine, or relearn

[23] New Hampshire's newly revised professional development standards also emphasize the importance of student achievement.

Like children in an instructional delivery model, adults need explicit instruction to learn a concept or routine. For example, teachers need to know the content knowledge associated with phonemic awareness (e.g., its definition, rationale, curricular implications, ways to assess, research-based instructional strategies, implications for special populations). However, adults also need the chance to apply this knowledge to both practice and real contexts. In other words, teachers need to be provided with modeled, guided, and independent opportunities that scaffold their experience with the application of this content and thereby make it possible for teachers to fully reflect on, experiment with, act on, and evaluate this content knowledge. An important fact to recognize and acknowledge is that "failure" or lack of transfer in learning this content is an inevitable part of the learning process, and teachers may need as many as 20 opportunities to practice a new routine before they will be able to use it automatically and with a fully grounded understanding (Moats, 2002).

The state professional development plan will incorporate the principle that "adults learn in stages" in each of their professional development events. However, the extent to which this principle is adhered will vary depending on the audience and the content. For example, this principle will be applied more vigorously to the Summer Reading Academies and to the On-Site Visits and Training, particularly with the SBRR content. However, in the Leadership Institutes, this principle will only be illustrated to a limited degree with the SBRR content to show the process in which leaders are likely to be engaged (e.g., how to evaluate principal or teacher performance through the use of SBRR components).

A full range of varied experiences. For leaders and teachers to acquire the content knowledge outlined above, they need a full range of varied experiences (Moats, 2002). In supplying these varied experiences, professional development providers need to consider what it is that teachers and leaders need to "jumpstart" the initiative. Moats (2002) recommends that teachers, particularly those who are new to a program, have the opportunity to "practice the components and routines needed to teach the first few weeks of that program" (p. 27) during summer institutes where "concentrated practice" can be provided. The same would certainly be true for principals and superintendents who will need practical knowledge for creating the context that supports this initiative, as described above. Moats (2002) goes on to suggest that "as teachers learn the procedures and components of the program," the following experiences should be provided to further support them in their endeavor:

- Study groups
- Collaborative teams
- Individual projects
- Observation and feedback
- Coteaching
- Demonstrations
- Problem-solving teams
- Classroom research projects
- Distance learning

- Videotapes
- Courses
- Visiting consultants

The primary purpose of these varied experiences is "to help teachers meet the needs of their students, as reflected in continuous classroom assessment of their progress" (Moats, 2002, p. 27). In other words, as children's needs are identified, all educators who are responsible for the delivery of reading instruction need to reflect on what it is they themselves need to learn and know how to do to more effectively reach the needs of children. The New Hampshire state professional development plan has intentionally designed the varied experiences for educators to better meet the needs of children.

Focus on student achievement. Finally, as suggested by the preceding section, the process of the professional development programs needs to focus its attention on student achievement. That is, the reason for learning the content outlined above and for engaging teachers in the professional development process is to better meet the needs of children who are struggling to learn to read. Although, in many ways, this focus is an overarching goal for the content of a professional development plan, it has specific implications for the delivery of this content. For example, leaders and teachers need to be constantly reminded of this focus so they have an underlying purpose or rationale for engaging in the Reading First initiative. Educators who question whether they need to be involved in the process need to be continually brought back to the assessment results: If children are not making progress, then what do we need to learn and know how to do as educators to more effectively reach and support the needs of these children?

Moats (2002) recommends that educators who are responsible for the reading instruction of K–3 children engage in a monthly process of examining objective assessment data to improve student performance (p. 28). Specifically, she recommends that teachers "meet at least every four weeks, with team-mates, coaches, and the principal, to interpret in-class assessment results and plan instruction" (p. 28). She goes on to explain that professional development should be "based in large part on student achievement patterns" (p. 28). In other words, if the data suggest a particular approach and teachers are not familiar with how to carry out such an approach, then ongoing professional development structures would make it possible to address those needs.

New Hampshire's state professional development plan requires Reading First K–3 teams in each school to meet on a monthly basis to review in-class assessments and plan instruction. This process will be facilitated by the site coordinator and professional development providers and coaches to ensure that teachers are reflecting on the needs of children and following through on their planned efforts to meet these needs. Professional development needs for on-site visits and training will, in part, evolve from these monthly meetings.

Overview of State Professional Development Plan

The purpose of this section is to provide an overview of the New Hampshire state professional development plan. The chart presented on the next page summarizes the key components of the plan. The narrative that follows provides brief explanatory comments for each of the professional development activities.

Note. In the center column, the chart identifies the key activities for each year of the grant. To the left of the center column, the chart identifies the time period during the year in which these activities will take place and the frequency with which these activities will occur. To the right of the center column, the chart identifies the intended audience for each activity and the presenters who will assume responsibility for the activity.

Time Period	Frequency	Year/Activities	Audience
		Year One (April 2003 to June 2004)	
NA	NA	No professional development activities.	NA
		Year Two (July, 2003 to June, 2004)	
All Year	Ongoing	Professional Development Providers Support Network	Professional Development Providers
All Year	Quarterly	Research Study Group	Educational Leaders
Fall	Annual	Leadership Academy	Educational Leaders
Fall/Winter	Annual	Grant Writing and Reviewing Workshops	Grant Writers
Spring	Bi-Weekly	On-Site Visits and Training (Initial)	Eligible RF Schools
Spring	Monthly	Site Coordinator/Coach Training (Initial)	Site Coordinators/Coaches
Summer	Annual	Reading Academy Trainers Workshop	Academy Trainers
Summer	Annual	Summer Reading Academies	Eligible RF Schools
		Year Three (July 2004 to June 2005)	
All Year	Ongoing	Professional Development Providers Support Network	Professional Development Providers
All Year	Quarterly	Research Study Group	Educational Leaders
Fall	Annual	Leadership Academy	Educational Leaders
September through June	Bi-Weekly	On-Site Visits and Training	Eligible RF Schools
September through June	Monthly	Site Coordinator/Coach Training	Site Coordinator/Coach
Spring	Annual	Reading Academy Trainers Workshop	Academy Trainers
July/August	Annual	Summer Reading Academies	Eligible RF Schools
July/August	Annual	State Outreach Workshops	Non-Eligible RF Schools
		Year Four (July, 2005 to June, 2006)	
All Year	Ongoing	Professional Development Providers Support Network	Professional Development Providers
All Year	Quarterly	Research Study Group	Educational Leaders
Fall	Annual	Leadership Academy	Educational Leaders
September through June	Bi-Weekly	On-Site Visits and Training	Eligible RF Schools

September through June	Monthly	Site Coordinator/Coach Training	Site Coordinator/Coach
Spring	Annual	Reading Academy Trainers Workshop	Academy Trainers
July/August	Annual	Summer Reading Academies	Eligible RF Schools
July/August	Annual	State Outreach Workshops	Non-Eligible RF Schools

Year Five (July, 2006 to June, 2007)

All Year	Ongoing	Professional Development Providers Support Network	Professional Development Providers
All Year	Quarterly	Research Study Group	Educational Leaders
Fall	Annual	Leadership Academy	Educational Leaders
September through June	Bi-Weekly	On-Site Visits and Training	Eligible RF Schools
September through June	Monthly	Site Coordinator/Coach Training	Site Coordinator/Coach
Spring	Annual	Reading Academy Trainers Workshop	Academy Trainers
July/August	Annual	Summer Reading Academies	Eligible RF Schools
July/August	Annual	State Outreach Workshops	Non-Eligible RF Schools

Year Six (July, 2007 to June, 2008)

All Year	Ongoing	Professional Development Providers Support Network	Professional Development Providers
All Year	Quarterly	Research Study Group	Educational Leaders
Fall	Annual	Leadership Academy	Educational Leaders
September through June	Bi-Weekly	On-Site Visits and Training	Eligible RF Schools
September through June	Monthly	Site Coordinator/Coach Training	Site Coordinator/Coach
Spring	Annual	Reading Academy Trainers Workshop	Academy Trainers
July/August	Annual	Summer Reading Academies	Eligible RF Schools
July/August	Annual	State Outreach Workshops	Non-Eligible RF Schools

Description of State Professional Development Activities

The following sections describe the purpose of each activity, the intended audience, the time period and frequency, and other relevant information.

Professional Development Providers Support Network

The purpose of the professional development providers support network is to ensure that the professional development providers, who are responsible for delivering the professional development activities, have regular opportunities to (a) ensure a common understanding of SBRR and its implications for practice; (b) plan for various professional development activities in consultation with the state coordinator and in response to ongoing needs-assessment data that is collected from LEAs and schools, including regular on-site visits (see below); (c) consult with one another and with other Reading First professional development providers from other states about carrying out the professional development program, including consultations with national experts in SBRR; (d) further investigate relevant research by participating in the research study group (see below); (e) attend professional development workshops relevant to the implementation of Reading First; and (f) attend various leadership and professional meetings in the state that may have an effect on the Reading First initiative.

The professional development providers for the state have been selected according to the following criteria: (a) doctorate in education, preferably in literacy; (b) extensive experience with adult learning contexts, including professional development and teaching contexts; (c) experience working in K–3 classrooms; (d) strong leadership, organizational, and communication skills (especially with groups); and (e) deep understanding of SBRR and its practical application (see Appendix D for curriculum vitas and SBRR experience). The professional development providers will be expected to provide a monthly report to the state's Reading First coordinator, summarizing their network, professional development, and site-based activities as well as budget reports and timelines for future activities. In addition to carrying out professional development programs, the professional development providers will play a key role in providing technical assistance to local schools by working closely with the LEA site coordinators who are responsible for carrying out the logistical implications of the Reading First initiative. This assistance will make it possible to carefully monitor the decisions made at the local level to ensure that they are consistent with the recommendations of the professional development program, particularly the SBRR intent of Reading First.

Research Study Group

The purpose of the research study group is to inform the Reading First stakeholders of key research findings that have relevance to carrying out the Reading First initiative. The group, which will represent educational leaders from around the state, will meet quarterly to discuss research—recent and past studies—that further informs our understanding of SBRR. The group will be responsible for reporting their findings to the state's Reading First coordinator so this information may be disseminated among Reading First school sites and used for

professional development activities. The research study group is considered to be a vital component for keeping the Reading First initiative and its emphasis on the scientifically based reading research alive and focused. The research study group may work collaboratively with the newly appointed research consultant, hired by the NH DOE to work in the Office of Curriculum and Assessment, Accountability, and School Improvement; this new position will require the consultant to provide current curriculum and instruction information to state and local agencies.

Leadership Institute

The purpose of the leadership institutes is fourfold: (a) to inform educational leaders from around the state about current and ongoing developments in SBRR and its implications for practice; (b) to inform educational leaders about the ongoing efforts to carry out the Reading First initiative at the state and local levels; (c) to enlist the insights of educational leaders about carrying out Reading First; and (d) to identify specific action plans at the leadership level that can further support the Reading First initiative in the state. In addition, leaders will be invited to attend key professional development opportunities provided by national experts.

The leadership academies will invite educational leaders, representing all facets of the state's educational community, whose decision-making power has potential implications for literacy instruction; this group includes members of the legislature, board of education representatives, Department of Education representatives (including all NH DOE employees who are responsible for literacy initiatives in the state), the governor's Reading Leadership Team, University of New Hampshire representatives, superintendents, principals, leaders of professional organizations and projects, reading specialists, and other key leaders in the field of literacy. The leadership institute will be held once a year in the fall, for the duration of the grant, with regular communications provided throughout the year to update the leadership community about efforts to carry out the Reading First initiative. In the initial year, the institute will host national speakers in the field of reading instruction to foster a deeper understanding of SBRR at the leadership level.

The state Reading First coordinator, in consultation with the professional development providers, will be responsible for organizing the leadership institutes. The content and process of the training will be governed by state and local needs as well as by the content outlined above. A written evaluation of the leadership institutes will be prepared on an annual basis.

Pre-Application and Grant Reviewing Workshops

The purpose of the pre-application workshops is to provide Reading First eligible teams, including their grant writers, with key information critical to writing a successful application for the Reading First initiative. Essential to these workshops will be the need to foster a solid understanding of SBRR and its implications for practice and for fulfilling the requirements of the RFP.

In addition, grant reviewing workshops will be held for the readers of the Reading First applications. The purpose of these workshops is to ensure consistent understanding of SBRR and its implications for practice and the RFP expectations. The review process for identifying and awarding subgrants will include the following stages:

- Solicit and identify highly qualified reviewers.
- Organize and plan for grant review trainings.
- Check for understanding of Reading First expectations, including SBRR.
- Check the consistency with which reviewers judge sample subgrants.
- Distribute to teams of reviewers subgrant applications for review.
- Schedule grant review meetings to monitor progress of teams.
- Conduct possible site visits for finalists.
- Make final determination of subgrant awards.

The REA/Reading First coordinator, in consultation with the professional development providers, will be responsible for organizing the training for the pre-application and grant reviewing workshops. The content and process of the training will be governed by the specifics outlined in the previous section. Finally, a written evaluation of the pre-application and grant reviewing workshops will be prepared by the state coordinator with the professional development providers.

Reading Academy Trainers Workshop

The purpose of the reading academy trainers workshop is to provide training for those trainers who will assist in presenting at the Summer Reading Academies; for the first year, these trainers will serve as apprenticeship trainers. The trainers will be selected from a competitive pool of applicants who clearly demonstrate (a) an understanding of SBRR and its implications for practice; (b) ability to successfully carry out professional development programs, presentations, or both; (c) a master's degree in education; and (d) experience in early childhood, literacy, or both. The workshops will be held each year, before the Summer Reading Academies, to train new trainers and update the knowledge base of previously trained trainers. In addition, trainers may be hired to assist the Department of Education in coaching or carrying out its evaluation plan by visiting Reading First sites for the purpose of program evaluation.

The professional development providers will be responsible for providing the training for reading academy trainers. The content and process of the training will be governed by the specifics outlined above (see Content section). The state Reading First coordinator, in

consultation with the professional development providers, will be expected to evaluate participants' pre- and post-test knowledge base to ensure a consistent and thorough understanding of SBRR and professional development. In addition, professional development providers will supervise the delivery of the Reading Academy trainers to ensure program fidelity. Finally, professional development providers will provide a written evaluation of the Reading Academy trainers to the state coordinator.

Summer Reading Academies

The purpose of the Summer Reading Academies is to provide an intensive, one-week professional development experience to Reading First school teams. The teams will consist of all educators in the school who are responsible for K–3 reading instruction, including classroom teachers, special service providers (including Title I, special education, speech and language, migrant, ELL, librarians), paraprofessionals, tutors, and administrators. Assurances will be provided by LEAs and schools when submitting the Reading First application that the team will be able to participate in the academies.

Summer Reading Academies will be required for the duration of the grant and will vary in their focus depending on each team's years of involvement in the grant. The first Summer Reading Academies, which will be held in the summer of 2004, will be available to successful applicants (anticipated number is 10-14 teams). For Year Two and subsequent years, the Summer Reading Academies will focus on issues relevant to professional development needs in the Reading First initiative. New teachers will be able to participate in special sessions to bring them up to speed with their colleagues.

Being cognizant of the differences in population size and scope, those designing the academies will model them after the Texas Reading Academies, with some modifications. At present, the Texas Reading Academies are designed to serve grade-level groups rather than teams of educators who are responsible for delivering reading instruction from grades kindergarten through 3. Because the anticipated size of eligible schools (estimated at 10-14 LEA sites) will result in a relatively small number of participants for each grade-level academy, the plan to focus on one grade level at a time did not appear to be an efficient use of local expertise. Moreover, if the design focuses on grade levels, then the team of educators who are responsible for reading instruction in grades K–3 will have a difficult time working together. Experience from REA has taught us that having the entire team work together on issues concerning K–3 reading instruction builds consistency and coherence and strengthens our ability to more effectively reach all children. Issues relevant to kindergarten through third grade are relevant for all specialists and classroom teachers who work with children at varying ability levels. The entire team benefits from a broader understanding of the expectations across the primary grades, while also developing expertise and having the opportunity to work with educators from other sites who have a similar grade level or specialty. Therefore, both team training and grade-level training will be provided at the summer academies.

The professional development providers and the reading academy trainers will be responsible for providing the training for the Summer Reading Academies. The content and process of

the training will be governed by the specifics outlined in the previous section (see Content section). During the Summer Reading Academy, teams will be expected to focus on SBRR and its practical implications. Consistent with the Texas Reading Academies, teams will be shown how to apply this knowledge in practical terms to specific lessons and how to create an instructional delivery system that supports the direct (i.e., systematic and explicit) instruction of SBRR content and the demonstration instruction that shows how to apply this content to reading and writing through modeling, guided practice, and independent practice. Additional training opportunities before and following the academies will require the teams to (a) develop grade-level curricular expectations consistent with SBRR, (b) examine and select a comprehensive reading program, and (c) receive training in state-required Reading First assessment tools.

Professional development providers and academy trainers will be expected to evaluate participants' pre- and post-test knowledge base to ensure a consistent and thorough understanding of SBRR. For those participants who fail to demonstrate adequate understanding, professional development providers will provide tutorial assistance and closely monitored support in the classroom. In addition, professional development providers will supervise the delivery of the Summer Reading Academies to ensure program fidelity. Finally, professional development providers will provide a written evaluation of the Summer Reading Academies to the state coordinator.

On-Site Visits and Training

The purpose of the on-site visits and training is for the professional development providers to provide ongoing support to Reading First schools. Specifically, on-site visits will take place on a weekly or biweekly basis and will include the following components: (a) written and videotaped observations of teachers; (b) demonstration lessons and coaching for teachers; (c) technical assistance and coaching for site coordinator and principals; (d) data collection and analysis to guide ongoing professional development; (e) monthly workshops and ongoing training for the K–3 team; (f) coordination of additional professional development opportunities (e.g., videotapes, coursework, visiting experts, approved workshops or conferences); (g) meetings with administrators, board members, or both; and (h) biweekly or monthly summary report to the school and NH DOE.

Site Coordinator Training

Each Reading First school will be expected to hire an on-site coordinator. This person's responsibilities will include (a) overseeing the administration of the grant; (b) communicating with the NH DOE, professional development provider(s), and school personnel; (c) meeting with the K–3 team members as a group and individually to identify needs; (d) observing team members to ensure their fidelity to carrying out a comprehensive reading program consistent with SBRR; (e) building expertise and capacity within the school (specific training will be provided for this purpose); (f) working with the professional development providers in preparation for on-site visits and to receive technical assistance; (g) organizing efforts to carry out professional development activities; (h) ordering materials for the K–3 team, including obtaining prior approval for purchases; and (i) preparing monthly

reports for the school and NH DOE. This person serves as the key liaison between the state, including the professional development providers, and the school's K–3 team, including administrators and board members.

The purpose of the training for the site coordinator is to bring together each site coordinator for ongoing support, training, and technical assistance that is key to carrying out the Reading First grant. These training sessions will take place once a month and will rotate among each of the Reading First sites so site coordinators benefit from seeing the efforts of each site in action. The focus of these training sessions will be structured according to the needs of each school, as determined by the site coordinators and the professional development providers, and will be geared toward ensuring that the activities, programs, and materials of the schools are aligned with the SBRR expectations. Professional development providers will provide this training and report to the state coordinator about the progress being made in these meetings.

State Outreach Workshops

The purpose of the state outreach workshops is to provide professional development to noneligible Reading First schools and other educators who are not associated with Reading First schools. Of particular priority are those schools that can demonstrate they have an at-risk population within their K–3 community, as determined by state test results and high poverty numbers or rates. Because these workshops are intended for schools that would not otherwise qualify for the Reading First funds, the expectation is that schools with Title I programs will be likely candidates for this effort (i.e., the school provides Title I services but did not meet all of the Reading First eligibility criteria). The state outreach workshops will begin in the summer of 2006 and will continue for the duration of the grant.

The state outreach workshops will be led by the professional development providers and the academy trainers. In addition, at this point in the process to carry out New Hampshire's Reading First initiative, teachers will have been trained in the Summer Reading Academy during the summers of 2003 and 2004 and will have 2 years of experience in carrying out the Reading First initiative. Therefore, the experiences and developing expertise of the Reading First schools will be used to illustrate the practical implications of these ideas. The content and process of the training will be governed by the specifics outlined in the previous section. Professional development providers will provide participants with feedback about pre- and post-test knowledge and will be available for site-based consultations after the state outreach workshops. Finally, professional development providers will provide a written evaluation of the state outreach workshops to the state coordinator.

Summary of State Professional Development Plan

In this section, New Hampshire identified the goals, rationale, and critical features of the state's professional development plan. In addition, the overview of New Hampshire's state professional development plan, along with the descriptive narrative, provided a snapshot picture of the various events planned for the professional development. In summary, these events include the following:

- Professional Development Providers
- Research Study Group
- Leadership Institutes
- Pre-Application and Grant Reviewing Workshops
- Reading Academy Trainers Workshops
- Summer Reading Academies
- On-Site Visits and Training
- Site-Coordinator Training
- State Outreach Workshops

These events will take place over a 6-year period, with many of these events taking place on an annual basis. The purpose of these events is to meet the goals outlined at the beginning of this section. The overall goal of the state's plan is to ensure that all constituents are provided with ongoing professional development to ensure the fidelity and vitality of the Reading First initiative in the state of New Hampshire and to improve student reading achievement.

Integration of Proposed Reading First Activities With REA Activities

The purpose of this section is to (a) identify current Reading Excellence Act (REA) activities and progress achieved and (b) describe how REA activities will be integrated or discontinued as part of the New Hampshire Reading First Program.

Comment:

The integration of Reading First activities with REA activities will be coordinated by the state REA/Reading First coordinator who has responsibility for both programs. We are in year 2 of REA and have collected fall data from all 11 sites. Each site coordinator has submitted a site report on activities for year 1 and plans for year 2. The state REA coordinator has visited sites to review progress, observe instruction, and communicate alignment with Reading First through the new REA guidance of October 2002. The following information explains which REA activities will be continued, discontinued, and integrated with the Reading First Program:

Continued REA Activities

The following activities will continue:

- Reading First will continue to use the NRP report as well as *Preventing Reading Difficulties in Young Children*, and *Put Reading First* as the primary documents to inform program development.
- Pre-application training for LEAs on SBRR and related topics will be given.
- Site coordinators for each Reading First school are important for coordinating budget issues, assessment, and materials and will continue.
- Regular meetings of site coordinators with SEA personnel to share successes and concerns will continue.
- Technical assistance by the SEA in assessments, core reading programs, and other implementation issues will continue.

Discontinued REA Activities

The following activities will not continue:

- All REA assessments will be discontinued and will be changed to more reliable and valid assessments.
- The professional development currently conducted by a variety of providers will end and a unified and coordinated professional development program developed by the Department of Education and expert consultants will be provided.
- Programs and materials that do not meet the rigorous standards of SBRR after review by state and local personnel will not continue.
- Family literacy activities will have a change in emphasis or may be continued through other funding.

Integrated REA Activities

The following activities will be integrated into the Reading First Program:

- The REA sites will use the Simmons and Kame'enui *Consumers Guide* to review its core reading program to see if it aligns with SBRR and the five dimensions of reading.
- The state leadership will be the same for both programs, helping to integrate REA with Reading First.

STATE LEADERSHIP AND MANAGEMENT

The purpose of this section is to describe the New Hampshire Reading First plan for (a) State Technical Assistance Plan, (b) Building Statewide Infrastructure, and (c) State Management.

State Technical Assistance Plan

The purpose of this section is to describe the state's plan to provide sufficient technical assistance to LEAs and schools participating in Reading First, including at a minimum (a) selecting and carrying out scientifically based reading programs; (b) selecting screening, diagnostic, and classroom-based instructional assessments; (c) identifying professional development providers who are highly knowledgeable of scientifically based reading instruction; and (d) monitoring the progress of Reading First LEAs and schools. In addition, this section provides a detailed time line for specific technical assistance activities, including ongoing site visits, and a description of individuals who will provide technical assistance.

Purpose of State Technical Assistance

The purpose of the New Hampshire Technical Assistance Plan is to ensure the implementation of the approved grants in the Reading First schools. The technical assistance will focus on the following four goals:

1. To ensure that local plans are based on SBRR and continue to demonstrate an understanding of SBRR as they evolve over the 6 years of the grant
2. To build local capacity to carry out reading programs based on SBRR including district and school leadership, district and school reading specialists, and the on-site coordinator
3. To promote and monitor the coordination of instruction provided by school literacy teams that are made up of Title I, ESL, SPED, and K–3 classroom teachers and paraprofessionals
4. To help schools to identify the strengths and gaps in their K–3 reading programs and build on the strengths as they design their Reading First programs built on SBRR

Personnel for State Technical Assistance

Technical assistance will be provided by three Reading First professional development providers (PDPs) and the REA/Reading First programs coordinator. The PDPs will provide the link between the teaching of information about SBRR at the Summer Reading Academies and the application of that information in the classroom. The Reading First coordinator will provide the coordination of technical assistance services and the link to the NH DOE. All four educators will extend their knowledge as experts in SBRR through attending workshops and conferences provided by the US Department of Education and the University of Texas; reading current research, articles, and books on SBRR; consulting with RMC personnel or other designated agencies assigned to provide technical assistance to states; and taking a key

role in providing state professional development in SBRR at the Summer Reading Academies.

Activities for State Technical Assistance

The Reading First PDPs will help Reading First districts and schools work with their K–3 curriculum, assessments, instructional strategies, programs and materials, and professional development to ensure that they align with SBRR. They will work closely with the on-site coordinator (most likely the reading specialist) to develop their expertise in SBRR and in carrying out Reading First at that site. Demonstration lessons, videotaping, and discussion groups are some of the strategies that will be used for coaching teachers. Reading First PDPs will help to coordinate the required Reading First assessments with other district and school assessments. They will help school leaders coordinate local professional development with state-required professional development and other grant projects.

The REA/Reading First coordinator will foster the coordination of the Reading First technical assistance and professional development with other state literacy training and support through School Improvement and other state initiatives to deliver a unified message on SBRR.

Delivery Plan for Technical Assistance

The three Reading First PDPs will meet with the REA/Reading First coordinator on a monthly basis to coordinate efforts, address problems, and share information. Each PDP will be responsible for 3–5 Reading First schools and will spend a full day in each school at least every other week during the school year. The assignment of schools will be primarily based on the geography of three regions: South of Concord, Concord to Franconia Notch, and north of the Notch to the Canadian border. Other considerations will be the size of the school and similarity of programs. Each PDP will work closely with the building principal and the on-site coordinator to build a Reading First management team to ensure that the Reading First plan is successfully carried out.

Qualifications of those who will be providing technical assistance at the local level are the same as the qualifications of the PDPs and are as follows: The three PDPs will all be doctoral level educators who are trained to be experts in SBRR. They will have attended training in Reading First, assessments, and professional development by the U.S. DOE and will be receiving additional training by the University of Texas on the delivery of the Texas Training Model for grades K–2. They will have worked and will continue to work with RMC or other agencies assigned by the federal government to assist in carrying out SBRR and in providing technical assistance. They will have taught courses and workshops incorporating SBRR.

Technical Assistance at the Local Level

The three Reading First PDPs and the REA/Reading First coordinator will monitor the Reading First sites for compliance with the regulations and the approved plan. A monitoring checklist will be developed for PDPs to use as they monitor their assigned schools and other

Reading First schools. A copy of the checklist will be sent to the Reading First coordinator on a monthly basis. Student achievement data will be reviewed on an annual basis, and PDPs and site coordinators will be required to write a yearly progress report. Areas of need will be determined, and training will be incorporated into the Summer Reading Academy. Intervention will be planned for those districts and schools that do not show adequate progress as defined in our evaluation.

Technical Assistance at the State Level

The following are activities that will be carried out by the state Reading First personnel to monitor the progress of Reading First programs:

- The state will monitor the Reading First budget on a quarterly basis to make sure funds are being expended correctly and in a timely manner.
- The Reading First state coordinator will visit each of the 10-14 sites each year to monitor implementation progress in curriculum, assessment, instruction, programs and materials, and professional development.
- The state coordinator will review weekly and monthly reports from PDPs about implementation progress.
- The state coordinator will meet monthly with PDPs to discuss progress and plan for future technical assistance needs.
- Student achievement data will be reviewed on a yearly basis, including state assessment data from the NHEIAP to monitor the percentage of students in novice.
- The state coordinator will give telephone and e-mail support to Reading First districts.
- Districts and schools that are rated "poor" on an implementation checklist will develop an improvement plan that will be monitored by the state.
- Attendance at the Summer Reading Academy will be monitored to make sure all required Reading First school personnel are participating.
- The state coordinator will communicate with other NH DOE literacy projects to ensure effective coordination at the state and local level.

Time Line for Technical Assistance

The following timeline describes the stages in which programs and personnel will receive technical assistance:

- **Stage 1.** Technical assistance will be provided by the NH DOE and by contracted experts on Reading First regulations and concepts such as SBRR. All eligible Reading First districts will be invited to participate in pre-application workshops which will address topics including the application process, SBRR, curriculum, assessment, instructional strategies, programs and materials, special populations, professional development, evaluation, coordination, leadership, technical assistance, budgetary issues, and grant-writing. Each district will be given a copy

of key documents such as the National Reading Panel report and *Put Reading First*.

- **Stage 2.** Once the Reading First schools have been selected, technical assistance will be specific to that school and will be provided by the PDPs assigned to that school. Technical assistance will be provided every week for the first 3 months and then every other week after that. State and local monitoring of each site will provide data to determine the success of implementation. Stage 2 lasts for the first 3 years of implementation for Reading First schools.
- **Stage 3.** In Stage 3, technical assistance will focus on sustaining growth in student achievement and on monitoring effective implementation. The PDPs will work more closely to make sure site personnel will be able to carry on the coaching, monitoring, and evaluation after Reading First has ended. Stage 3 is also when "model" Reading First sites will share their successes statewide and when information can be shared with all New Hampshire elementary schools.

Building Statewide Infrastructure

The purpose of this section is to describe how the state will use Reading First to build a statewide commitment to improving K–3 reading instruction and raising K–3 reading achievement. Specifically, the plan for building statewide infrastructure (a) specifies the leadership, including providing resumes and highlighting expertise with SBRR, that will be dedicated to the New Hampshire Reading First program; (b) describes how Reading First will be used as the foundation for improving K–3 reading instruction throughout the entire state, including non-Reading First schools; and (c) includes assurances that the governor of the state has established a Reading Leadership Team to coordinate the development of the application and assist in the oversight and evaluation of the New Hampshire Reading First program.

Reading Leadership Team

The Reading Leadership Team is a required component of the Reading First initiative. New Hampshire's team, currently referred to as the New Hampshire Partnership for Literacy, was originally established in 1996 by the governor of New Hampshire to support the New Hampshire Reads program, and more recently, the Reading Excellence program. The following sections describe the mission statement and membership list for the New Hampshire Partnership for Literacy.

Mission statement

The mission of the New Hampshire Partnership for Literacy is to coordinate literacy initiatives for children and their families, with a primary focus on the initial development of literacy from birth to the end of third grade.

Membership

The members of the literacy partnership team follow:

Craig Benson, Governor, State of New Hampshire
Peter Burling, NH State Legislative Representative
Joe Castle, North Country AmeriCorps, Tri-County Community Action Program
Janet Catalfano, Reading Excellence/Reading First Coordinator, NH DOE
Sharon Dalton, Director, Nashua Even Start Family Literacy Program
Nicholas Donohue, Commissioner of Education, NH DOE
Peg Downing, Director, NH Reads AmeriCorps Program
Christine Dwyer, RMC Research Corporation
Dorothy Fair, Title I State Coordinator, NH DOE
Jessica Foss, Parent Representative, Nashua Even Start Program
Janice Hastings, VSA Arts of New Hampshire
Brenda Iorio, NH Head Start Directors Association
Sylvia Larsen, Ranking Member, Senate Education Committee
Stephen L'Heureux, NH House Education Committee
Cindy Linehan, Reading Specialist, Fairgrounds Elementary School, Nashua
Ruth Littlefield, Bureau of Special Education, NH DOE

Janice Lopilato, (exofficio) Corporation for National Service
Peg McAllister, NH Association of School Principals
Karen Moyer, NH Community Action and WIC Directors Associations
Eileen Mullen, Children, Youth & Families, NH Health and Human Services
Alice Nye, Family Resource Connection, NH State Library
Carolyn O'Hara, Developmental Services, NH Health and Human Service
Jane O'Hearn, NH Senate Education Committee
Dorothy Oliver, Administrator, Bureau of Integrated Programs, NH DOE
Kristen Reinhold, Retired & Senior Volunteer Programs
Beth Reutlinger, Plus Time NH
Paula Roberts, Even Start Coordinator, NH DOE
Rose Savino, NH Migrant Education, NH DOE
Helen Schotanus, Office of Curriculum and Assessment, NH DOE
Debbi Scire/Helen Page, Campus Compact for NH
Clair Synder, Ranking Member, NH House Education Committee
Debbie Tasker, Office of Adult Basic Education
Heather Thalheimer, Assistant Director, Parent Information Center
Pat Van Wagoner, NH Public Television
Ellen Wheatley, NH Head Start Coordinator, NH Health and Human Services
Sherry Wheeler, Foster Grandparents Program
Lynn Winterfield, NH Employment Program, Office of Family Services

The R.E.A.D. Team

The Reading Experts Advisory Delegation (R.E.A.D.) team was formed to attend the First Reading Leadership Academy in Washington, D.C. in February 2002. The team has continued to meet during the application formulation process and has served as a think tank to plan the major components of the Reading First application. The R.E.A.D. team has representation from the NH Department of Education, University System of New Hampshire, independent literacy consultants, and local school district reading personnel. Members of the team have attended both state and federal training in assessments, professional development, SBRR, and the Reading First Writers Academy. The R.E.A.D. team has had many discussions on designing a Reading First plan that will be workable in New Hampshire given the long history of local control. The R.E.A.D. team will continue to meet on a regular basis (approximately six times per year) to support the implementation of the Reading First plan. The members of the R.E.A.D. team include the following educators:

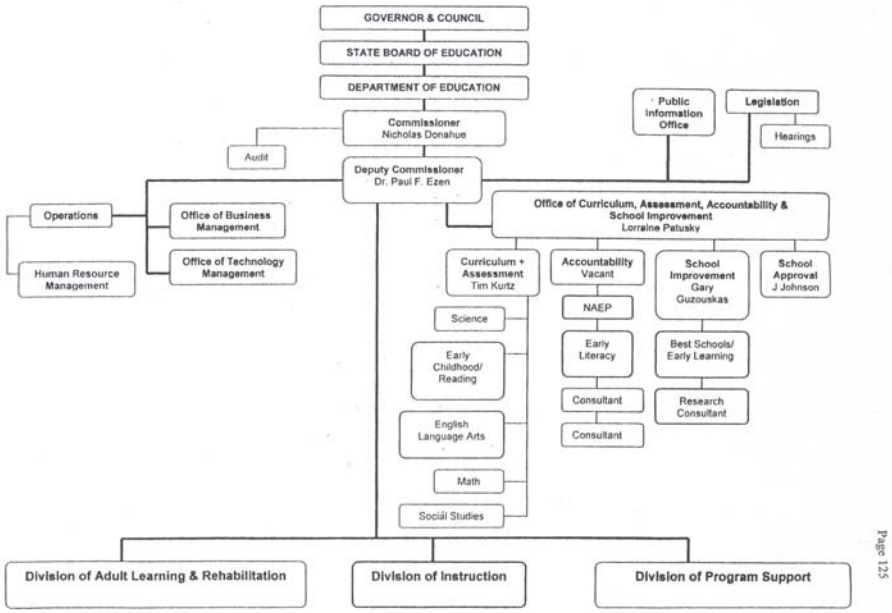
Dennise Bartelo, EdD, Plymouth State College
Grant Cioffi, PhD, University of New Hampshire
Melissa Keenan, EdD, Educational Consultant
Kathe Simons, PhD, Educational Consultant
Cindy Linehan, MEd, Reading Specialist, Nashua, NH
Helen Schotanus, MEd, Reading Consultant, NH DOE
Janet Catalfano, MEd, REA/Reading First Coordinator, NH DOE
Dorothy Fair, MEd, Title I State Coordinator, NH DOE

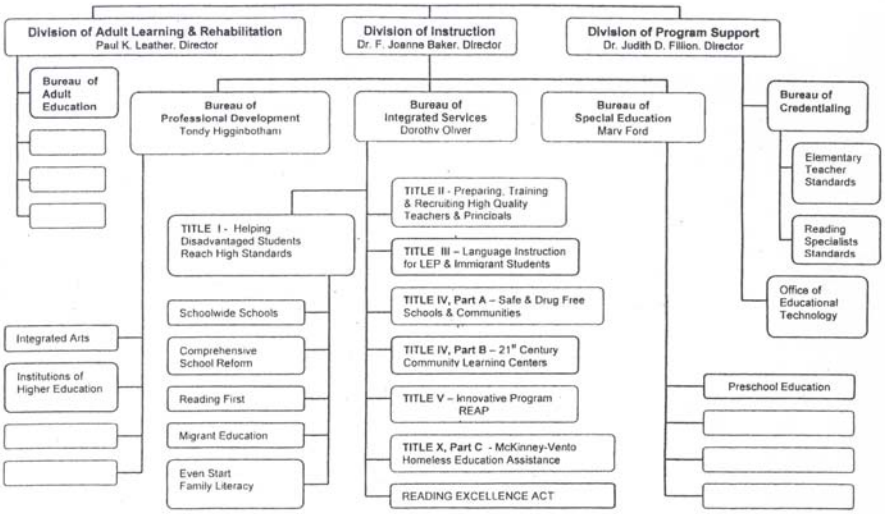
Dorothy Oliver, MEd, Bureau Administrator, ESEA, NH DOE
Philip Yeaton, EdD,Educational Consultant

Literacy Connections at the NH DOE

Since the beginning of "No Child Left Behind" (NCLB) and Reading First, the NH DOE has explored ways to increase communication and connections among staff members involved in literacy-related projects. The following flowcharts summarize the key departments involved in literacy-related projects and their relationship to one another. (See flowcharts on the next two pages.)

Literacy Connections in the NH Department of Education




Division of Adult Learning & Rehabilitation
Paul K. Leather, Director
Division of Instruction
Dr. F. Joanne Baker, Director
Division of Program Support
Dr. Judith D. Fillion, Director
Bureau of Adult Education
Bureau of Professional Development
Tondy Higginbotham
Bureau of Integrated Services
Dorothy Oliver
Bureau of Special Education
Mary Ford
Bureau of Credentialing
Elementary Teacher Standards
Reading Specialists Standards
Office of Educational Technology
TITLE I - Helping Disadvantaged Students Reach High Standards
TITLE II - Preparing, Training & Recruiting High Quality Teachers & Principals
TITLE III – Language Instruction for LEP & Immigrant Students
TITLE IV, Part A – Safe & Drug Free Schools & Communities
TITLE IV, Part B – 21st Century Community Learning Centers
TITLE V – Innovative Program REAP
TITLE X, Part C - McKinney-Vento Homeless Education Assistance
READING EXCELLENCE ACT
Schoolwide Schools
Comprehensive School Reform
Reading First
Migrant Education
Even Start Family Literacy
Integrated Arts
Institutions of Higher Education
Preschool Education

Central to fostering connections among literacy-related projects within the NH DOE are the following key groups and activities:

- **The Early Literacy Management Group (ELMG)**. The ELMG was formed to bring together people in Title I, Even Start, Reading Excellence/Reading First, Special Education, Best Schools, bureau and division administrators, and the elementary reading consultants. The group is coordinated by the deputy commissioner, Dr. Paul Ezen. The ELMG meets on a monthly basis to share information and coordinate programs within the Department of Education. The ELMG will act as a clearinghouse for all projects related to literacy at the NH DOE. This group will make sure that all literacy professional development coming from the state is aligned with SBRR.

- **Literacy Links**. The NH DOE is in the process of reorganizing its web site. Reading First plans to set up a site that would provide communication and coordination of literacy information at the NH DOE and links to state and national literacy data and resources.

- **The NH State University System**. Many teachers are trained in New Hampshire's university system. The NH DOE is in the process of reviewing the coursework in reading required for early childhood education and elementary education as well as the certification in English and language arts for a reading specialist.

- **State Leadership Institute**. Key organizations and leadership personnel such as school superintendents and legislators will be invited to attend a State Leadership Institute on Literacy. National experts on SBRR will be invited to speak to the group. Our goal will be to increase awareness of the NH Reading First program and SBRR. These institutes will be held yearly to share progress, research, and evaluation information.

State Management Plan

The purpose of this section is to (a) demonstrate that the proposed staff for Reading First is sufficient and qualified to support the number and needs of selected LEAs and schools; (b) provide a detailed time line of activities, including benchmarks and goals for carrying out the Reading First program; (c) demonstrate that the proposed allocation of resources will be sufficient to carry out successfully the state's Reading First plan; and (d) describe how the state will build on and promote coordination among literacy programs in the state (at the federal, state, and local level) to increase the effectiveness of these programs and to avoid duplication of Reading First efforts.

Proposed Staff

The New Hampshire Reading First program will be coordinated by Janet Catalfano, who is a full-time employee in the Bureau of Integrated Programs in the Department of Education. She also coordinates the Reading Excellence program in New Hampshire, which is in the third cohort of states to receive this money. Eleven schools currently operate REA programs, reaching approximately 2,500 students.

Janet is an experienced educator with 35 years of experience in public school education, including experience as a reading teacher, special education teacher, Title I director, federal projects coordinator, and elementary principal. She is experienced in program development, curriculum and assessment, and group process.

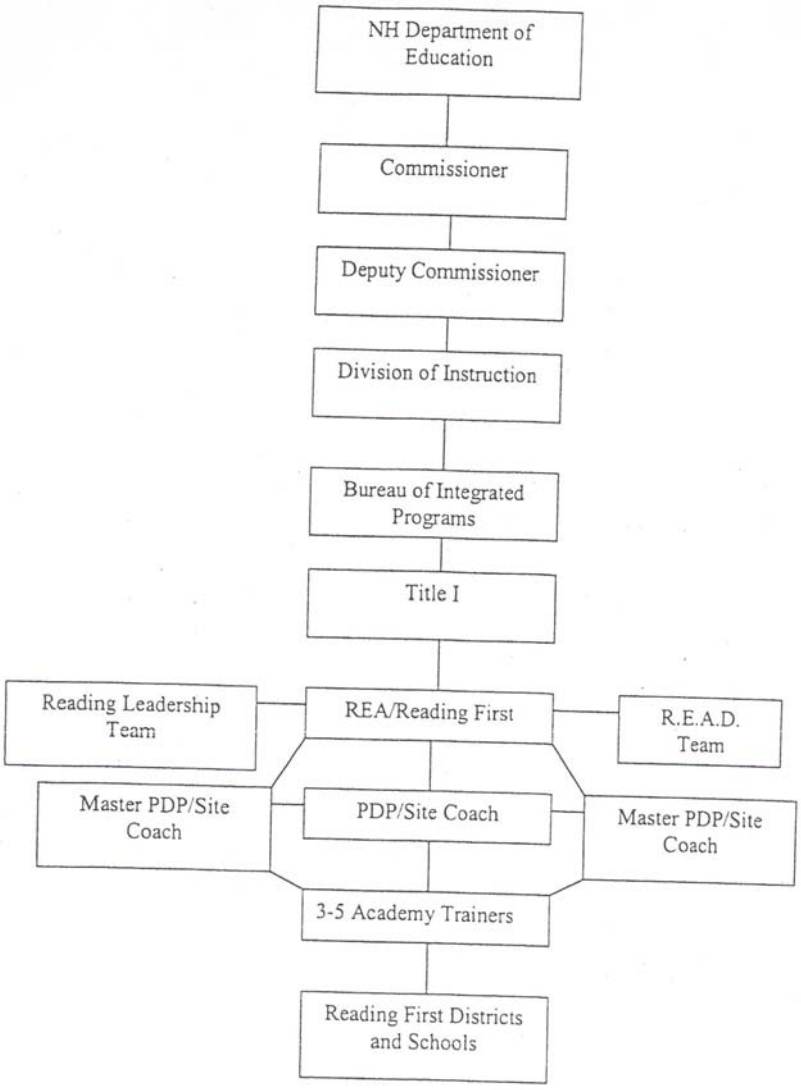
She has attended all the Reading First training as well as the training from the Texas Center for Reading and Language Arts. She has completed graduate studies in reading and writing, and has attended workshops and conferences and has studied readings on SBRR. A part-time administrative assistant will be hired to assist Janet in the management of the Reading First program.

Three master professional development providers (PDPs) will be contracted to provide the training of teachers at the Summer Reading Academies and to provide the ongoing site-based coaching for the selected Reading First schools. These three educators will be doctorial level literacy specialists who are experts in SBRR. (See the appendix for the documentation of SBRR training and experience for Kathe Simons and Melissa Keenan.) A third educator will be hired with similar education and experience.

In addition to the PDPs, we will contract three to five Summer Reading Academy trainers. During the first academy these trainers will apprentice to the master trainers and in the second academy and following years they will be full trainers. (See NH DOE flow chart.)

Each school site will have an on-site coordinator who will manage the grant as well as work with the principal and PDP to implement the Reading First Program. The on-site coordinator will coordinate all assessment and evaluation data for the school and will be trained to be a

site expert in SBRR. (See attached flowchart of personnel for the New Hampshire Reading First Program.)


NH Department of Education
Commissioner
Deputy Commissioner
Division of Instruction
Bureau of Integrated Programs
Title I
Reading Leadership Team
REA/Reading First
R.E.A.D. Team
Master PDP/Site Coach
PDP/Site Coach
Master PDP/Site Coach
3-5 Academy Trainers
Reading First Districts and Schools

Detailed Time Line of Activities

The following chart describes in detail the activities related to the Reading First program.

DATE	ACTIVITIES	RESPONSIBILITY
May 2003	Approval of state plan	U.S. DOE
June 2003	Meeting of R.E.A.D. team Update on RF plan	State Coordinator PDPs
June 2003	Notification of eligible districts	State Coordinator
July 2003	Prepare grant awards to G&C	Marie Gage
August 2003	Grant awards and contracts to G&C	State Coordinator Marie Gage
August 2003	State Plan on DOE website	State Coordinator Melissa Keenan Lori Kincaid
September 2003	R.E.A.D. Team Review core reading programs	State Coordinator PDPs
September 2003	Planning for subgrant workshops	State Coordinator PDPs
September 2003	Revise RF RFP	State Coordinator Dottie Fair PDPs
September 2003	Revise and send out evaluation RFP	State Coordinator Fran Bridges-Cline
September 2003	Subgrant Workshop #1	State Coordinator Dottie Fair, Title I PDPs
September 2003	Subgrant Workshop #2	State Coordinator Dottie Fair, Title I PDPs
October 2003	Subgrant Workshop #3	State Coordinator Dottie Fair, Title I PDPs
October 2003	Subgrant Workshop #4	State Coordinator Dottie Fair, Title I PDPs
October 2003	Send PDPs to Texas for training	PDPs
November 2003	Final draft of RFP available. Q & A session on RFP	State Coordinator PDPs
November 2003	R.E.A.D. team meeting	State Coordinator

Sept.– Nov. 2003	Select grant reviewers	State Coordinator
Sept.– Dec. 2003	Review Texas materials for PD	PDPs
January 2004	Training for grant reviewers	State Coordinator PDPs Grant Reviewers
February 2004	Subgrant RFP due at DOE	RF eligible schools
February 2004	Distribute RFPs to grant reviewers	State Coordinator
February 2004	Subgrant review, site visits, and selection of schools to receive awards	Grant Reviewers
March 2004	Announcement of awards	State Coordinator
March 2004	Assignment of PDPs to RF schools	State Coordinator PDPs
March 2004	R.E.A.D. Team meeting	State Coordinator PDPs
April 2004	Meeting with RF schools to discuss start up activities and summer academy	State Coordinator PDPs On-Site Coordinators
April-June 2004	Plan Summer Reading Academy	State Coordinator PDPs
January –June 2004	Develop Summer Reading Academy materials	PDPs
May-June 2004	Meetings at RF schools	PDPs
May-June 2004	RF schools purchase tests, materials, and core programs (Form I approval)	State Coordinator Consulting with PDPs on purchases
Late July or Early August 2004	First Summer Reading Academy	State Coordinator PDPs
September 2004	Baseline assessment for RF	RF Schools
Sept. 2004 to June 2005	PDPs meet weekly with RF schools	PDPs
Sept. 2004 to June 2005	Meetings between PDPs and State Coordinator. to monitor RF sites	State Coordinator PDPs

Allocation of Resources

(See Appendix I for Budget.)

Coordination Among Literacy Programs

(See Building State Infrastructure section.)

STATE REPORTING AND EVALUATION

State reporting and evaluation are a critical part of the New Hampshire Reading First Program and will be used to determine (a) the effectiveness of the program and its various activities at the state and local levels and (b) whether LEAs should continue to receive funding of their subgrant awards. New Hampshire, in partnership with an external evaluator (to be determined), will evaluate New Hampshire's Reading First initiative. The purpose of this section, therefore, is to describe the state's proposed plan for state reporting and evaluation.[24] Specifically, this section will address (a) evaluation strategies; (b) the state reporting plan; and (c) participation in the national evaluation.

Evaluation Strategies

Key to the development and implementation of an effective evaluation strategy is ensuring that the strategies are part of a coherent federal, state, and local plan that meets all of the relevant requirements and objectives but minimizes the testing burden on schools. The purpose of this section is to describe New Hampshire's Reading First evaluation strategies. Specifically, this section will (a) outline the specific plans, including purpose, model, questions, methods, and measures, for regularly evaluating the progress that participating LEAs are making in improving reading achievement; (b) provide a detailed Request for Proposal to illustrate how the state will contract with an external evaluator to evaluate New Hampshire's Reading First program; (c) provide a timeline for conducting the evaluation; and (d) demonstrate how the state will make decisions with respect to Reading First based on the evaluation outcomes, including intervention or discontinuation of LEAs that are not making significant progress.

Plan for Evaluation

A plan for evaluation should demonstrate a clear understanding of the purpose of the program that needs to be evaluated, the underlying model of change informing the program, the research questions used to guide the evaluation, the research methods to conduct the evaluation, and the valid and reliable measures that will be used to evaluate the progress of the program in an ongoing manner.

Purpose

First, to evaluate a program, evaluators must specify the primary goals or purposes of the program. According to the legislation, the primary purpose of the Reading First initiative is to assist

> local educational agencies in establishing reading programs for students in kindergarten through Grade 3 that are based on scientifically based reading research, to ensure that every student can read at grade level or above not later than the end of

[24] Note that this proposed plan is considered a draft and will be reviewed with the external evaluator; any changes to this plan will be submitted to the federal government to ensure that the plan is consistent with Reading First intentions.

> Grade 3.(No Child Left Behind, Part B—Student Reading Skills Improvement Grants, Subpart 1—Reading First, SEC. 1201.Purposes, p.178)

To accomplish this goal, state and local educational agencies (i.e., SEAs and LEAs] will (a) provide *professional development* "so the teachers can identify specific reading barriers facing their students and so the teachers have the tools to effectively help their students learn to read"; (b) provide assistance in selecting and administering a complete battery of *reading assessment* tools including screening, diagnostic, progress monitoring, and outcome measures, as well as classroom-based (or informal) measures; (c) provide assistance in "selecting or developing [and implementing] *effective instructional materials*,… programs, learning systems, and strategies to implement methods that have been proven to prevent or remediate reading failure …"; and (d) "*strengthen coordination* among schools, early literacy programs, and family literacy programs to improve reading achievement for all children" (No Child Left Behind, Part B—Student Reading Skills Improvement Grants, Subpart 1—Reading First, SEC. 1201.Purposes, p.178–179, emphasis added).

The legislation clearly identifies one primary purpose (i.e., every student can read at grade level or above not later than the end of Grade 3) and four subpurposes (or means for accomplishing the primary purpose): professional development, assessment, instruction (including programs and materials), and coordination.

Model

As with most educational efforts, the purpose of the Reading First initiative is to bring about change, and underlying this change effort is a model for conceptualizing how this change will take place. The logic model best characterizes the change process implied by the Reading First initiative. This model "hypothesizes that the culture of the school needs to change to support research-based practices" (Arizona's Reading First plan, p. 95).[25] Two primary assumptions that are consistent with the logic model inform the Reading First initiative with respect to how change in reading achievement can be most effectively attained. First, the Reading First initiative assumes that the need exists to build nested systems at the state, district, and school levels to help teachers become more effective at teaching reading and, in turn, to enable students to achieve higher levels in reading. Second, the culture of the school needs to change at each level of this "nested system" (e.g., support systems, leadership, changes in teachers' practices and beliefs) to support research-based practices.

The implication of this type of change model is that different facets of the program need to be examined to evaluate the progress state and local agencies are making in improving reading achievement. These facets include (a) implementation evidence (i.e., professional development, assessment, instruction—all of which include strategies, programs, and materials, and coordination); (b) achievement gains (i.e., progress in essential components of reading and overall reading performance by the end of Grade 3); and (c) program

[25] Information about the Logic Model was provided by Marcia Davidson, RMC Research Corporation, personal communication from Marcia Davidson to NH DOE November 2002; see also Arizona's Reading First Initiative.

effectiveness (i.e., the relationship between implementation evidence and achievement gains). The following paragraphs describe each of these facets in more detail.

Evaluation of implementation evidence will assist the state in determining the extent to which the project has faithfully carried out all of the Reading First features, in particular, the alignment of the program with the essential components of reading. In accordance with Reading First legislation and supporting documents, program features include curriculum, assessment, instructional strategies, programs and materials, special needs, professional development, leadership, technical assistance, evaluation, coordination, and management. Underlying the notion of "faithful implementation" is the assumption that educators, at all levels of the system, who are responsible for reading instruction, have received some kind of professional development and technical assistance to carry out these features.

Therefore, the essential question guiding the evaluation of implementation evidence is whether educators have transferred what they have learned to these features (i.e., To what extent do educators apply what they have learned at different levels of the system?). More specifically, an evaluation of implementation evidence, in the context of Reading First, needs to examine (a) the extent to which each of these features are aligned with SBRR (or the essential components of reading instruction); and (b) the extent to which these features are being faithfully carried out (and are effective). To evaluate this implementation evidence, state and local agencies will use a variety of measures, which are described later in more detail.

Evaluation of achievement gains will assist the state and local agencies in determining the extent to which children develop in their reading proficiency (across five SBRR components) and meet the Reading First performance standard of reading at grade level on or before third grade. The ultimate goal of the Reading First initiative is to have every child reading at grade level or above not later than the end of Grade 3. However, we need to monitor children's progress along the way to determine whether they are making gains in the essential areas of reading and to adjust instruction (and professional development and technical assistance) accordingly. To determine these achievement gains, state and local agencies will use valid and reliable measures, including screening, diagnostic, progress monitoring, and outcome measures that include the state test (i.e., the NHEIAP); in addition, teachers will use classroom-based tools to informally monitor progress in the classroom.

Finally, evaluation of program effectiveness will assist the state and local agencies in determining whether New Hampshire's Reading First program was effective in bringing about achievement gains in reading. In other words, the relationship between program implementation features and reading achievement data will be examined. A quasi-experimental design was selected over an experimental design because randomly assigning children to treatment and control conditions within the same school (i.e., Reading First eligible schools are expected to fully participate in the carrying out of all features of the Reading First initiative) would be difficult to do. Therefore, the findings from this analysis will be correlational rather than causal.

In summary, the logic model best characterizes the change effort of the Reading First initiative whereby the culture of the schools needs to change to support research-based practices. To evaluate this change effort, different facets of the program need to be evaluated at different levels of the system, and these facets should include implementation evidence, achievement gains, and program effectiveness. To evaluate these different facets of the New Hampshire Reading First program, evaluators must have research questions that guide the evaluation process in specific ways, which, in turn, correspond to the original purposes of the program.

Research Questions

The research questions used to guide the evaluation of the New Hampshire Reading First program will parallel the purposes for the Reading First initiative outlined in the legislation. Because implementation evidence is presumed to be responsible for achievement gains, these research questions are addressed first.

Implementation evidence. The following research questions will guide the evaluation of implementation evidence:

- To what extent do state and local reading standards correlate with the curricular implications of SBRR or the essential components of reading? To what extent are teachers using this aligned document?
- To what extent do state and local assessment tools measure SBRR or the essential components of reading? To what extent are these tools being used by teachers to make instructional decisions?
- To what extent are instructional strategies, the comprehensive reading program, and other materials or programs consistent with SBRR? To what extent are these strategies, programs, and materials being used by teachers?
- To what extent are the needs of special populations being addressed in ways that are consistent with SBRR? To what extent are teachers using these approaches?
- To what extent is professional development consistent with SBRR? To what extent are professional development activities being used to support Reading First? How effective are these activities in contributing to teachers' knowledge base and the transfer of this knowledge to the classroom?
- To what extent are leadership activities consistent with SBRR? To what extent are leadership activities being used to support Reading First? How effective are these activities in contributing to educators' knowledge base and the transfer of this knowledge to the state and local agencies?
- To what extent are technical assistance efforts consistent with SBRR? To what extent are technical assistance activities being used to support Reading First? How effective are these activities in contributing to educators' knowledge base and the transfer of this knowledge to the state and local agencies?
- To what extent are coordination efforts consistent with SBRR? To what extent are coordination activities being used to support Reading First? How effective are these activities in contributing to educators' knowledge base and the transfer of this knowledge to the state and local agencies?

- To what extent are management efforts consistent with SBRR? To what extent are management activities being used to support Reading First? How effective are these activities in contributing to educators' knowledge base and the transfer of this knowledge to the state and local agencies?

Achievement gains. The following research questions will guide the evaluation of achievement gains:

- To what extent are students progressing in their knowledge and abilities related to five SBRR components?
- To what extent are students meeting the performance standards of reading at grade level or above not later than the end of Grade 3?

Program effectiveness. The following research questions, which correspond to the specific purposes of the Reading First initiative (as specified by the legislation, with subpurposes stated first), will guide the evaluation of program effectiveness:

- How effective was the professional development approach in contributing to children's ability to read at grade level or above not later than the end of Grade 3?
- How effective was the assessment process in contributing to children's ability to read at grade level or above not later than the end of Grade 3?
- How effective were the instructional strategies, programs, and materials in contributing to children's ability to read at grade level or above not later than the end of Grade 3?
- How effective were the systems of support at the state and local levels in contributing to children's ability to read at grade level or above not later than the end of Grade 3?
- How effective was the overall New Hampshire Reading First program in contributing to children's ability to read at grade level or above not later than the end of Grade 3?

Research Methods and Measures

To address the research questions outlined above, multiple research methods (including qualitative and quantitative) and multiple measures will be used.

Evaluation of implementation evidence. As noted above, evaluation of implementation evidence will assist the state in determining the extent to which the project has faithfully carried out all of the Reading First features, in particular, the alignment of the program with the essential components of reading. In accordance with Reading First legislation and supporting documents, program features include curriculum, assessment, instructional strategies, programs and materials, special needs, professional development, leadership, technical assistance, evaluation, coordination, and management. The operating assumption is that, to exert any kind of influence on these features, educators who are responsible for reading instruction at state and local levels must engage in professional development and technical assistance. Furthermore, the assumption is that, given the purposes of the Reading

First initiative, we are looking to evaluate the extent to which these features are consistent with SBRR and the extent to which these features are being carried out effectively. Therefore, we ultimately are looking to evaluate whether what was learned during professional development and technical assistance opportunities led to effective transfer to various educational contexts (i.e., the classroom, the school, the district, and the state).

The most important measure of implementation evidence is the ability of educators to transfer their knowledge to the various contexts in which they work at the state and local levels.[26] Of particular importance to the Reading First initiative is the ability of teachers to transfer to the classroom the knowledge they acquired during professional development (and technical assistance). This ability will be measured with several tools, including classroom observations and surveys. The classroom observations will involve a pre- and post-interview, a lesson plan analysis, and a videotaping of the lessons being observed. A minimum of four 90-minute observations will be conducted over the course of the year. The observation components will be analyzed using structured forms and rubrics, and a 10 percent sample of the forms will be coded by another researcher to ensure that interrater reliability is high. Evaluators will attend training sessions to learn how to code observation components; during training, sample observations will be coded until coders have reached a 90 percent level of interrater reliability. In addition to observations, teachers will be asked to complete a series of surveys, including a pre- and post-survey, to evaluate teachers' self-reported practices and understandings.

In addition to evaluating the extent to which teachers transfer knowledge to the classroom, other educators who are responsible for reading instruction will also be evaluated. This group includes administrators, special service providers, paraprofessionals, and tutors. These educators will be observed in contexts related to reading instruction. For example, principals will be evaluated while observing teachers and providing feedback. Special service providers, paraprofessionals, and tutors will be observed during instructional contexts. Where appropriate, these educators will engage in a pre- and post-interview, a plan analysis, and a videotaped observation. Surveys will also be completed over the course of the year to evaluate other educators' self-reported practices and understandings. Observations and surveys will be analyzed using structured forms and rubrics and will be checked by other evaluators as described above.

Finally, educational leaders at the state and local levels will be evaluated to determine the extent to which they have transferred knowledge to professional development, technical assistance, coordination, and management efforts. Of particular importance is the extent to which state and local leaders have fostered capacity building and support. The details for how to go about evaluating educational leaders most effectively will be determined with the external evaluator. Observations, interviews, and surveys are expected to be essential measures for this purpose. In addition, reports prepared by the state coordinator, professional development providers, and on-site coordinators will be used to evaluate the implementation efforts of educational leaders.

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[26] The information from this section was borrowed from the Arizona's Reading First Initiative evaluation plan (p. 98).

Evaluation of achievement gains. As noted above, evaluation of achievement gains will assist the state and local agencies in determining the extent to which children develop in their reading proficiency (across five SBRR components) and meet the Reading First performance standard of reading at grade level on or before third grade. The ultimate goal of the Reading First initiative is to have every child reading at grade level or above not later than the end of Grade 3. However, we need to monitor children's progress along the way to determine whether they are making gains in essential areas of reading and to adjust instruction (and professional development and technical assistance) accordingly. Therefore, to monitor achievement gains across five SBRR components over the course of the year, local agencies will use valid and reliable measures, including screening, diagnostic, and progress monitoring measures (see selected assessment tools in State Outline and Rationale for SBRR sections). In addition, teachers will use classroom-based tools to informally monitor progress in the classroom. Descriptive statistics will be used by LEAs to summarize whether children are making progress in five essential components of reading. LEAs will be expected to provide ongoing summary reports of their results to local constituents and the New Hampshire Department of Education.

To determine overall achievement gains in reading proficiency and, hence, whether schools are making significant progress over the first 3-year period of the grant, a pre- and post-test design will be used with state-selected outcome measures. These outcome measures include the Phonological Awareness Literacy Screening (PALS) or Dynanic Indicators of Basic Early Literacy Skills (DIBELS), the Stanford Achievement Test—10th Edition (SAT-10), the Test of Word Reading Efficiency (TOWRE), and the end-of-third-grade state test, New Hampshire Education, Improvement, and Assessment Program (NHEIAP).

Specifically, during Year One, outcome data (using the PALS or DIBELS, SAT-10, and the TOWRE) will be collected in the fall as a baseline for determining overall reading proficiency in Reading First schools and comparison groups (see below). In the spring of Year One (using alternative forms, if necessary) and the spring of Year Two, outcome data (including the NHEIAP) will be collected and used as a way to monitor whether schools are making progress in fostering reading achievement in the first 2 years of the grant; these data will serve as a starting point for identifying schools that may need additional support or intervention in carrying out Reading First. During the spring of Year Three, outcome data will be collected and used to determine which schools will continue to receive Reading First funding. With guidance from an external evaluator, statistical procedures will be used to determine what constitutes "significant progress" and, therefore, what benchmarks schools must meet by the end of Year One, Year Two, and Year Three. Reading First schools must demonstrate an increase in the percentage of children who can read at grade level or above not later than the end of Grade 3, and this increase must be statistically significant over the course of 3 years.

Evaluation of program effectiveness. To determine the overall effectiveness of the New Hampshire Reading First program on achievement gains, the state will use a quasi-experimental design.[27] This design was selected over the experimental design because

[27] The information from this section was borrowed from the Arizona's Reading First Initiative evaluation plan (p. 99).

randomly assigning children to treatment and control conditions (i.e., Reading First eligible schools are expected to fully participate in the program) will be difficult to do. Therefore, evaluators will need to choose a comparison group for each eligible site that is in another nearby school matched for demographic and achievement characteristics with each of the schools receiving the grant. Once grantees are selected, they will be called, and an exploratory conversation will be held with them to determine which school would represent the best match as a comparison group. The comparison group will be offered incentives to participate. Active parent consent for children's participation will be sought, and all rules for human subjects research will be followed.

Schools will be matched specifically on demographic characteristics such as gender, racial or ethnic background, socioeconomic status, English Language Learners, and special education status, among others. Schools will also be selected on the basis of achievement data on the state reading test (i.e., NHEIAP). If possible, demographic and achievement data will be collected before the New Hampshire Reading First program grants are distributed and will be collected every year of the grant thereafter.

The grantee and its matched school will be asked to administer the same outcome measures (as described above). Outcome measures will be correlated to implementation evidence to determine whether educator practices correlate with effects that are measured. The overall purpose of examining program effectiveness is to compare Reading First schools and non-Reading First schools to see whether program implementation associated with Reading First schools correlates with an increase in reading proficiency.

Summary

The New Hampshire Reading First program's plan for evaluation includes the purpose of the program that needs to be evaluated, the underlying model of change informing the program, the research questions used to guide the evaluation, the research methods to conduct the evaluation, and the valid and reliable measures that will be used to evaluate the progress of the program in an ongoing manner. This plan for evaluation will be further developed and refined in consultation with an external evaluator; if substantial changes are made, the plan for evaluation will be submitted to the federal government for approval.

Request for Proposal

The state will contract with an external evaluator who will conduct SBRR to evaluate and report on the New Hampshire Reading First program. The Request for Proposals outlines the expectations of the external evaluator or evaluators, including the qualifications of the evaluator or evaluators (see Appendix E for a draft of RFP for external evaluator).

Timeline

The timeline outlines the annual evaluation tasks required to carry out the evaluation plan as described above (see Appendix E). The evaluation timeline illustrates the points at which data will be collected for the purpose of evaluating implementation evidence, achievement

gains, and program effectiveness. On the timeline (see Appendix E), the column on the left corresponds to the research questions identified above. For example, to determine the extent to which state and local curricula are aligned with SBRR, eligible Reading First schools will be expected to include with their application their school curricula and an analysis examining the extent to which it is aligned with SBRR. Once grants have been awarded, Reading First schools will be expected to demonstrate, thereafter, the progress they have made in addressing the gaps in their curriculum and the extent to which they are using the aligned curriculum to inform their instruction (as determined by pre- and post-observation interviews and lesson plan analysis).

Therefore, in collecting implementation evidence, the status of each implementation feature will be evaluated before the grant and in an ongoing manner thereafter. A similar approach will be used with data concerning assessment, instructional strategies, programs, materials, and special populations. In addition, points of data for leadership, coordination, and management will be collected at four times during the year to evaluate the ongoing implementation of these efforts. Finally, it will be necessary to determine with the external evaluator what implementation evidence to collect from the comparison schools; we must clearly understand to what evidence in the comparison schools we are comparing Reading First eligible schools.

Professional development and technical assistance will involve a series of activities over the course of the year (see state professional development plan), each of which require the professional development providers, the on-site coordinators, or both to produce a monthly report describing the effectiveness of these activities. In addition, professional development providers and on-site coordinators will be observed at four points during the year to evaluate the alignment of their activities with SBRR and the effectiveness of their activities with educators who are responsible for reading instruction.

Achievement gains will be evaluated using two primary approaches: (a) SBRR outcome measures; and (b) the state test (i.e., the NHEIAP). The SBRR outcome measures will be used at the beginning of the program (for baseline data) and in the spring of each year thereafter for Reading First schools and the comparison group (i.e., the matched non-Reading First schools). The state test (i.e., the NHEIAP) is administered in May of each year.

Finally, the evaluation of program effectiveness will be conducted by the external evaluator using implementation evidence and achievement gains data. The results from the implementation evidence, achievement gains, and program effectiveness will be summarized in formative and summative reports and presented by the external evaluator to the state coordinator and the R.E.A.D. team on a regular basis (to be determined in consultation with the external evaluator). The information from this analysis will be used to further develop and refine the New Hampshire Reading First program and, where necessary, intervene or discontinue Reading First efforts in LEAs that are not making significant progress.

Intervention and Discontinuation Criteria

The state will make decisions about the need for intervention or discontinuation based on both formative and summative evaluation outcomes. The external evaluator, in consultation with the state Reading First coordinator and the R.E.A.D. team will determine the specific criteria for judging significant progress (as described above). Once established, the state will take the following steps if LEAs are not making significant progress in terms of program implementation and achievement gains in reading.[28]

At any time in the funding cycle, the state can intervene through its grants management system by suspending or discontinuing the next interim payment of Reading First funds. The state will provide written reasons for programmatic or fiscal noncompliance, which may result in the withholding of future funds.

During Year One, the external evaluator will distribute formative and summative reports to the state and LEAs. In the event that LEAs and schools are not demonstrating sufficient progress in terms of implementation, the state will issue a warning. The warning will contain prescriptive measures for dealing with deficiencies, with particular emphasis on implementation elements, and may include requirements for participation in additional professional development or the receiving of additional technical assistance. LEAs will be expected to incorporate these prescriptive measures into their school improvement plans. LEAs must resolve the identified deficiencies to restore funding.

During Year Two, progress monitoring will continue. At the end of the second year of the grant cycle, if evidence of deficiency remains or surfaces, particularly in terms of student achievement progress, the LEAs will receive notification from the state that Reading First funds may be discontinued after Year Three if gains are not observed during Year Three. Documentation supporting the state's actions will be provided.

During Year Three, an LEA may have made implementation progress in the first year of funding and minor gains in terms of implementation and achievement during the second year. If significant gains are not evident in the third year, the LEA will not be eligible for the second round of funding for Years Four through Six.

[28] The information from this section was borrowed from the Arizona's Reading First Initiative evaluation plan (p. 102).

State Reporting

The purpose of this section is to describe how the state will report on having met all of its obligations in carrying out the Reading First program. The SEA will submit an evaluation report at the end of each fiscal year to the U.S. Department of Education, and this report will include information on the following: implementation evidence, achievement gains, and program effectiveness (each described further in the following sections).

Implementation evidence. The report will demonstrate the extent to which the state has met the program requirements and obligations related to the implementation and administration of the Reading First program. In the first year of the program, the state will report on the subgrant application process, professional development and technical assistance provided to assist in this application process, the awarding of grants, and preparations for Year Two activities. In the second year of the grant, and thereafter for the duration of the grant, the state will report on all program requirements and obligations.

Achievement gains. The report will summarize the achievement gains of LEAs and schools including (a) the progress of Reading First LEAs and schools in reducing the number of students reading below grade level; (b) whether the state and LEAs have significantly increased the percentage of students reading at grade level or higher, including disaggregated groups of students by low income, major racial or ethnic groups, LEP, and special education; and (c) which LEAs and schools are making the largest gains in reading. Finally, the state will report on those LEAs and schools whose Reading First funding has been discontinued because of lack of progress, particularly in terms of raising K–3 reading achievement.

Program effectiveness. The state report will provide first- and second-year formative evaluations and third-year summative evaluations with respect to the effectiveness of the New Hampshire Reading First program. The summative evaluation will provide correlational evidence indicating the extent to which Reading First LEAs and schools appeared to have contributed to student gains in reading compared to non-Reading First schools. The third year report will also include a description of the valid and reliable measures used for evaluating this progress.

Participation in National Evaluation

This proposal includes a signed assurance that, if asked, the SEA and the Reading First LEAs will agree to participate in the national evaluation of Reading First. In addition, the SEA is willing to participate in the identification of comparison LEAs and schools for use in the national evaluation of Reading First.

CLASSROOM LEVEL IMPACT

The purpose of this section is to describe how the many facets of the New Hampshire Reading First program will result in improved classroom reading instruction. In the section entitled Key Reading First Classroom Characteristics, we provide a detailed description of how Reading First classrooms will look and demonstrate the integration and coherence among the many components of New Hampshire's Reading First program. In the Coherence section, we refer the reader to several sections that we feel adequately address how the activities of New Hampshire's Reading First program are based on SBRR and integrated in a coherent manner.

Key Reading First Classroom Characteristics

The New Hampshire Reading First program envisions the following scenario for how Reading First K-3 classrooms will work. In light of the current initiatives in the state (see Current Reading Initiatives and Identified Gaps section), as well as the potential challenges for the implementation of Reading First in New Hampshire (see State Outline and Rationale for SBRR, Broad Implications for SBRR section), we feel it is particularly important to illustrate what reading instruction, based on scientifically based reading research, looks like in the classroom.

The Philo Curtis School has successfully applied for a Reading First grant through the New Hampshire Department of Education. In the fall of the 2004-2005 academic year, the positive effects of Reading First (i.e., changes to the curriculum, assessment, instructional strategies, programs, materials, and professional development), that are rooted in scientifically-based reading research, are already evident in the K-3 classrooms.

The Philo Curtis School adopted a comprehensive reading program in grades K-3. As part of their Reading First application process, the K-3 team demonstrated how the comprehensive reading program meets the criteria outlined in the *Consumer's Guide* and how the program is aligned with the state frameworks. Also, the K-3 team, under the guidance of their professional development provider and their site coordinator, revised their language arts curriculum so that it reflects the scientifically based reading research (e.g., phonemic awareness and fluency had not been previously addressed in their curriculum).

The school has participated in state professional development as well as local professional development to ensure that the instructional program, strategies, and materials being used in the classroom are implemented in a way consistent with the scientifically based reading research and focus on the teaching of the five essential components of reading (i.e., phonemic awareness, phonics, fluency, vocabulary, and comprehension). Teachers are expected to teach these essential components as part of a coordinated instructional sequence (as specified by the comprehensive reading program), by using explicit instructional strategies, by providing students with ample practice opportunities, and by using materials that are aligned with student needs and instructional objectives.

The K-3 team administered a battery of screening tools, required by the state for Reading First, at the beginning of the year to identify children who may be at risk for reading failure. Children who were identified as being at risk, according to the screening tools, were further assessed by the school's reading specialist using a battery of diagnostic tools, again required by the state. In addition to providing high quality instruction in the classroom using a comprehensive reading program, children who have been diagnosed as being at risk in any of the five essential components of reading are provided with additional intervention support by the reading specialist, Title I teacher, or special education teacher. The K-3 team recently administered a battery of progress monitoring tools, required by the state, in order to ensure that all children are meeting pre-specified benchmarks; the progress monitoring tools are used every twelve weeks with all students and more frequently with at-risk students. In addition, classroom teachers use informal, classroom-based assessment tools recommended by the comprehensive reading program to assess daily progress across the five components. The school and the state will determine whether the children in their school are making progress over time by examining the results of annual outcome measures; if this school does not appear to be making sufficient progress in the first year of the grant, the state will provide additional professional development and technical support to ensure that the K-3 team is able to meet their goal of having all children read at grade level or above not later than the end of Grade 3.

As part of a regularly scheduled visit to a Reading First school, the professional development provider observes the school's K-3 classrooms during their 90-minute blocks of reading. During this time students are engaged in a variety of reading and other language arts activities, which illustrate many of the key Reading First classroom characteristics intended to bring all students to grade level.

In the kindergarten classroom, the professional development provider observes the following activities: At the start of the 90-minute block, the kindergarten teacher engages her students in a series of activities intended to foster phonemic awareness (e.g., listening for sound; rhyming activities), letter knowledge (e.g., letter names; letter shapes), print awareness (e.g., directionality), and phonics (e.g., linking sounds with letters). These brief but engaging lessons will continue in a systematic manner over the course of the year and will coordinate with other activities and lessons planned during the 90-minute block. During the next phase of the 90-minute block the teacher introduces the children to a new theme they will be investigating over the next several weeks. She reads aloud a book related to the theme and while reading engages her kindergarten children in a variety of comprehension strategies. For example, during the first reading of the book, she invites the students to make predictions and ask questions about the story, and during the second reading of the book she invites the students to summarize the story and make connections to their own experiences. As a follow-up activity to the read aloud, the teacher introduces to the students the idea of making a classroom book that is related to the theme they are investigating; the teacher later explains that this provides her children with the opportunity to apply much of what they have been learning about reading and writing. Following the read aloud, students engage in a series of language art related activities including writing (e.g., getting ideas), vocabulary development (e.g., classifying words), and language conventions (e.g., words to describe people, places,

and things). The teacher explicitly teaches and models these strategies and skills, which are part of a prespecified sequence of lessons designed by the publisher of the reading program, and then provides an opportunity for children to practice the strategies and skill in small groups or on their own during independent work time. During work time, which is the last phase of the 90-minute block, the teacher focuses on students who may need additional help, assists small groups of children in order to monitor their progress in different areas, and is available to students as they work independently. Students are expected to work on theme-related projects, independent and paired reading, listening center activities, and other language arts activities (e.g., worksheets, writing, sharing stories).

In the first grade classroom, the classroom teacher initiates her 90-minute block with a series of activities intended to foster skill development in phonemic awareness (e.g., blending syllables and word parts, segmenting onset and rime), phonics (e.g., listening for vowel and consonant sounds), and fluency (e.g., reading decodable texts). These skills are carefully sequenced by the comprehensive reading program and coordinated with other reading and writing activities planned for the rest of the week. Students are given decodable texts, developed by the publisher of the comprehensive program, in order to engage students in the reading of words that correspond to the phonics patterns they have been exploring. Following this series of brief lessons, the teacher engages the students in their third rereading for the week of a theme-related big book about the ocean. While reading the selection, the teacher explicitly teaches and models selected vocabulary and comprehension strategies and skills. The teacher also invites children to apply what they have been learning about print and phonics to the big book by asking the children to draw attention to certain features of the text. The teacher invites students to talk about what they have learned from the book, particularly as it applies to their theme, and what questions they would like to further investigate; the information students have learned and their questions are recorded on a wall chart. After the observation, the teacher explains that each day students are expected to apply what they learn from the teacher-directed lessons to other reading and writing investigations and in the process learn new skills (e.g., interviewing, using reference materials). Following the big book activity, the teacher explicitly teaches and models a series of lessons that focus on vocabulary (e.g., using context clues), writing (e.g., editing), and language conventions (e.g., capital letters); students are asked to engage in some practice exercises before independently completing a series of activities related to these lessons. During the final phase of the 90-minute block, students participate in a work time where they are expected to read (e.g., read big books, leveled books, and decodable texts;, listen to stories; partner read), work on theme-related projects, write, and complete vocabulary and language convention exercises. The teacher meets with small groups of children to listen to children read the decodable and leveled texts; she assesses how they are handling the decoding of these texts and the application of comprehension skills and strategies presented in previous lessons. In addition, she uses this time to meet the needs of individual students through preteaching, reteaching, or adaptation activities.

In the combined second/third grade classroom, the classroom teacher works with the reading specialist during the 90-minute block so they are able to use the second and third grade components of the comprehensive reading program, as intended by the publisher. In addition, the publisher provided professional development training to address how to use the

program in a combined classroom. The physical arrangement of the second/third grade classroom is designed so that each teacher is able to provide direct and explicit instruction at either end of the room and focus exclusively on the lessons relevant to one grade level. For the first part of the 90-minute block, each teacher provides a series of lessons that focus on their respective grade level skills related to phonics (e.g., reading words with vowel sounds *e, ee, ea*; investigating compound words) and fluency (e.g., reviewing familiar sight words, reading decodable texts); these lessons have been carefully sequenced by the publisher of the program. During the next phase of the 90-minute block, each teacher engages her respective grade in a series of reading and responding activities related to a selection from the program's anthology. Both teachers were observed activating the students' prior knowledge, previewing the selection, setting purposes for reading, and introducing vocabulary. While reading the text, each teacher explicitly taught (i.e., explained to students what they would be learning) and modeled the application of specific comprehension strategies (e.g., making connections, visualizing) and skills (e.g., author's purpose). After reading the anthology selection, each group discussed the story, reviewed some of the selected vocabulary, and examined literary elements they have been taught (e.g., mood, figurative language, setting). Following the reading and responding activities, both teachers provided explicit instruction in a series of lessons relevant to spelling (e.g., blends), vocabulary (e.g., using a dictionary), writing (e.g., revising), language conventions (e.g., proper nouns), and handwriting. During work time, students worked independently, in pairs, or small groups on a variety of activities including theme-related projects involving the application of reading and writing, practice exercises relevant to the morning's lessons (e.g., in phonics, spelling, vocabulary, handwriting), and additional reading and writing (e.g., paired reading, rereading of anthology selection or other leveled books, reading at the listening center, or working at the writing center). Teachers used this time as an opportunity to preteach or reteach skills and strategies and monitor children's progress using informal tools in small groups or one-on-one. At the end of the work time, students from both grades gathered together to share summaries of books, excerpts from their writing, and theme-related projects in process. The teachers used this sharing time as an opportunity to review and reinforce strategies and skills learned.

Across the K-3 team, the professional development provider observed teachers implement the comprehensive reading program in a way consistent with the scientifically based reading research. Teachers clearly were teaching the five essential components of reading as part of a coordinated instructional sequence (as specified by the comprehensive reading program) and through the use of explicit instructional strategies, by providing students with ample practice opportunities, and by using materials that are aligned with student needs and instructional objectives. The professional development provider felt confident that should observations such as these remain consistent over the year, the Philo Curtis School undoubtedly would demonstrate improvements in reading achievement on progress monitoring and outcome measures, and all children would be reading at grade level or above not later than the end of Grade 3.

Coherence

The purpose of this section is to demonstrate how the New Hampshire Reading First Program's activities are based on scientifically based reading research and integrated in a coherent manner. However, we feel we have sufficiently addressed this topic in the following sections: Current Reading Initiatives and Identified Gaps (see Current Identified Gaps section), State Outline and Rationale for SBRR (see Broad Implications of SBRR), Professional Development Plan, and State Leadership and Management. Throughout this document we have made a concerted effort to base all of the Reading First activities on SBRR and integrate these activities across different educational contexts, including state and local agencies.

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